THE

GARDENERS' CHRONICLE

A Weekly Illustrated Journal

OF

HORTICULTURE AND ALLIED SUBJECTS.

(*ESTABLISHED IN* 1841.)

VOL. XXXIII.—THIRD SERIES.

JANUARY TO JUNE, 1903.

LONDON:
41, WELLINGTON STREET, COVENT GARDEN, W.C.
1903.

BRADBURY, AGNEW AND CO., LTD., PRINTERS, 1903
LONDON AND TONBRIDGE.

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THE
Gardeners' Chronicle

No. 836.—SATURDAY, JANUARY 3, 1903.

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THE MARKET GARDENS OF AMIENS.

THE word *hortillonage*, as applied to what we should call market gardens, is not to be found in ordinary French dictionaries. Even Littré does not mention it, at least it is not in the edition which is on our shelves. In Picardy, however, and especially around the city of Amiens, it is a word that one hears frequently; whilst the traveller on any of the lines of railway leading to the famous city is pretty sure, as he looks out of the carriage window, to make acquaintance with the thing signified. On the main line through Amiens to Paris, soon after passing Abbeville, the line runs through the valley of the Somme, bordered by chalk hills, and filled with alluvial deposits. The first indication the traveller gets of the nature of the district he is traversing is afforded by the little brick-like masses of peat he sees heaped up in stacks in the meadows by the sides of the streams. Perchance he may get a glimpse of the workmen in punts scooping out the precious fuel from the ditches, as shown in our illustration at fig. 4 (3), p. 9.

This may serve as an indication of the nature of the soil with which the Picard market-gardener has to deal—a light black sandy peat full of moisture, apparently rich in humus, but destitute of fibre, and, as we learn, deficient in lime. It is always more or less sodden with moisture, and not unfrequently flooded. In places the ground is traversed by an infinitude of narrow and shallow canals, which afford easy access to the beds, and secure a certain amount of drainage. By means of punts the workmen are enabled to carry out the necessary operations (fig. 1, p. 2), and by the same means they convey to the great city the produce of their industry (see fig. 4 (2), p. 9). It is a pretty and interesting sight to see the strings of boats laden with garden produce making their way along the stream, and finally depositing their contents on the side of the quay in the heart of the old town (fig. 2, p. 3), dominated by the glorious cathedral, which rises out of the flat plain as if it, too, were some gigantic outgrowth from the soil.

And what vegetables they are! We English people are apt to be a little conceited about the produce of our market gardens, but the comparison of what may be seen in the markets and shops of Amiens with the average produce exhibited in our own greengrocers' shops, will not be altogether to the advantage of our cultivators.

The peaty soil, left to itself, is not a fertile one. Its natural vegetation is one interesting rather to the botanist than to the farmer. To render it suitable for market garden purposes the soil must be drained to let off superfluous water, and secure aëration and the conversion of the inert nitrogen which it contains into nitrates, that can be utilised by the plants. Lime must be added to neutralise the acidity of the soil, and favour nitrification; potash in the form of kainit and superphosphates are also valuable adjuncts, but the Picard farmer prefers the use of stable-manure—and they do say that the sewage of Amiens contributes not a little to the fertility of the soil. If this be so, the consumption of salads or uncooked vegetables should be avoided when in that neighbourhood. Granted these ameliorations, the Amiens *hortillonages* may and do produce vegetables of superior quality, not only such leafy vegetables as Cabbages, Spinach, Lettuces, or Endives, but magnificent Cauliflowers, Vegetable-Marrows, bulbs such as Onions and Leeks, and even roots like Carrots, Turnips, and Radishes. Currants, Raspberries, Gooseberries, may even be seen, and occasionally fruit-trees, but these at a distance from the river, and so far as casual inspection may be trusted, not well cared for. Amiens, Abbeville, Lille, and other towns in the north of France, are supplied from these *hortillonages*, also called *hardines*, a perversion, we suppose, of *jardins*, as well as Paris. It is possible also that London may absorb some of the productions, but enquiries made on the spot did not lead to the impression that any large trade was done with England. One reason for this may be that the Amiens gardeners do not concern themselves with forcing vegetables or securing early crops. The dull climate of the district, sometimes called the reservoir of France, may account for this. The language spoken by the working-classes of Picardy is even less like French to the ordinary tourist than is the dialect spoken at Stratford-atte-Bow. Some documents relating to the *hortillonages* were placed at our disposal, but as they were written in the Picard dialect they proved to be almost entirely incomprehensible. Fortunately the object-lessons are easily read, and dispense with the necessity of any acquaintance with the Picard dialect.

In consideration of the Vegetable Exhibition and Conference to be held at Chiswick in the coming autumn, these notes, as well as those on a Middlesex market garden, of which an instalment was given in our last issue, may be of interest.

NOVELTIES OF 1902.

ORCHIDS.

IT is a significant fact that not a single new *species* of Orchid has received either a First-class Certificate or an Award of Merit at the Royal Horticultural Society's meetings during the past year, the only First-class Certificate taken by a species being for the fine old Zygopetalum rostratum, shown by Sir Trevor Lawrence, Bart., at the Temple Show on May 28. Even the Botanical Certificates awarded, a large number of which went to plants exhibited by Sir Trevor Lawrence, and some to the Hon. Walter Rothschild, tell of recognition of good old garden plants, with a very few examples of recent introduction. These facts indicate that the state of things we foretold years ago has happened, and that the hybridist has, perhaps unfortunately, overtaken the importer, and rendered his vocation too unremunerative to pursue, except in those fields likely to produce phenomenal varieties, such as Odontoglossum crispum.

But history repeats itself, and the time of the reveuge of the importer looms in the distance—the time when the large number of raisers already at work get their productions of the same parentage on the market together. Then it will be *sauve qui peut*, and values may go down to those of ordinary florists' flowers. Already the holders of large batches have to resort to expedients to get them off, although with the hybrids, as with the fine varieties of species, the really distinct and handsome command the market, and prices for such go up rather than down.

The number of new hybrid Orchids of the past year is so great, that only some of the most prominent can be enumerated. Of those standing head and shoulders above the average are the fine Cypripedium × Venus "Oakwood variety" of Norman C. Cookson, Esq.; the stately and richly-coloured Cypripedium × Mrs. Wm. Mostyn, of Francis Wellesley, Esq.; the gorgeous Lælia × Digbyano-purpurata Edward VII., and Lælio-Cattleya × Queen Alexandra, of Messrs. Veitch, two varieties which formed such an appropriate coloured supplement to our Coronation number; and the noble Cypripedium × Emperor of India of Messrs. Sander & Sons, which was illustrated in the same issue.

Norman C. Cookson, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman), also got certificates for Lælio-Cattleya × Cooksoniæ, Phaius × Ruby, P. × Phœbe superbus, Calanthe × triumphans, Odontoglossum × Wilckeanum Rothschildianum, O. × Rolfeæ Oakwood variety, and O. × Adrianæ Cooksoniæ, all of superior merit.

Baron Sir H. Schroder (gr., Mr. H. Ballantine), has during the year shown many of his superb Odontoglossums, among those selected for Awards being O. × Adrianæ "Memoria Victoriæ Reginæ," O. triumphans latisepalum, O. × Harryano-crispum "Duchess of York," and O. × Harryano-crispum delicatum.

Francis Wellesley, Esq., Westfield, Woking (gr., Mr. J. Gilbert), had for his best, beyond the one already named, the fine white and crimson Cattleya Mossiæ Arnoldiana Westfield variety, C. × Lady Ingram Westfield variety, Oncidium × Mantini superbum, Cypripedium × rubescens Ranjitsinghi, and Lælio-Cattleya × Zephyra alba.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), adds to his previously fine record, Odontoglossum crispum "Fairy Footsteps," O. c. Pittiæ, O. c. Lady of the Lake, O. Ruckerianum Pittianum, O. Hallii Queen Alexandra, Cypripedium × Wm. Pitt, C. × Felicity, Cattleya × Mrs. Pitt, Lælio-Cattleya × Ingrami Rosslyn variety, L.-C. × Isis Rosslyn variety, and others.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr., Mr. J. Davis), a keen appreciator of good Orchids, had awards for amateurs, notably Odontoglossums, and varieties of Lælia anceps, which form the specialties of De B. Crawshay, Esq. (gr., Mr. Stables); the very fine Odontoglossum crispum Lady Jane, by J. Wilson Potter, Esq.; O. crispum Robert McVittie, of W. Thompson, Esq.; Cypripedium × Miss Fanny Wilson, by Drewett O. Drewett, Esq.; the Odontoglossum crispum Marjorie, of R. Ashworth, Esq.; Lælio-Cattleya × Mrs. Chamberlain, of the Rt. Hon. J. Chamberlain.

Messrs. Jas. Veitch & Sons maintain the lead in the special class of hybrids which they effect. Besides the two superb examples already cited, they have secured awards for Lælio-Cattleya × Orphens, L.-C. × Digbyano-Schroderæ, L.-C. × Rosalind "Prince of Wales," L.-C. × Thorntoni grandiflora, L.-C. × Statteriana superba, L.-C. × Myra Princess of Wales; Cypripedium × Thalia, and Cymbidium × Lowio-grandiflorum, all very fine productions.

Messrs. Charlesworth & Co., of Heaton, Bradford, send out a continuous stream of good things, among those for which they secured awards during the past year being Sophro-Lælia × Heatonensis, Lælio-Cattleya × Dora, several forms of the superb Cattleya × Iris, C. × Adolphus superba, Odontoglossum Pescatorei Charlesworthi, O. crispum punctatissimum "Princess Maud," Oncidium varicosum Charlesworthi, Lycaste × hybrida, Cypripedium × Edithæ, and others.

Messrs. Sander & Sons, St. Albans, appeared at their best in their marvellous group shown at the Holland House Coronation Show on June 24, when they secured two First-class Certificates and eight Awards of Merit, chiefly for fine hybrids and rare blotched forms of Odontoglossum crispum, among which were O. crispum Imperatrix Reginæ, O. c. Princess Helène, O. c. Princess Victoria, O. c. Her Majesty, O. × loochristyense Princess Margaret, Miltonia vexillaria Queen Alexandra, Lælio-Cattleya × Aphrodite King Edward VII., Cattleya × Prince Edward, Lælio-Cattleya × Martineti Prince Arthur, and the elegant new bi-generic hybrid Zygonisia × Rolfeaua, the whole forming a record of which any firm might well be proud. Other fine subjects for which Messrs. Sander secured awards were the white Cattleya amethystoglossa Sanderæ, Cypripedium × Evelyn Ames superbum, C. Transvaal superbum, C. × A. Dimmock, Lælio-Cattleya × Clive var. Sanderæ, and the handsome Zygo-Colax × Wiganianus superbus.

Messrs. Hugh Low & Co. secured awards for the fine white Cattleya Trianæi alba var. Mrs. Ed. Sondheim, C. labiata, and C. labiata Amesiana; C. Grossii, and Odontoglossum × loochristyense enfieldense.

Various other exhibitors produced good novelties and useful additions to our garden plants.

The Continental Exhibits

Came chiefly from Messrs. Linden, of Brussels, whose Odontoglossum crispum Miss Lucienne Linden, and some other blotched varieties, were fine. M. Chas. Vuylsteke showed his fine group of spotted Odontoglossums of the O. × ardentissimum class at the Temple Show, taking awards for four; Mr. A. A. Peeters, of Brussels, showed good spotted Odontoglossum crispum, and other novelties; as also did M. Chas Maron, of Brunoy, France.

Among the new or rare Orchids illustrated in the *Gardeners' Chronicle* in 1902, are:—

Angræcum ichneumoneum, Supp., March 22.
Bulbophyllum Ericssoni, November 22, p. 383.
Cypripedium × A. Dimmock, March 8, p. 157.
Cypripedium × Brunhilde, May 31, p. 350.
Cypripedium × Emperor of India, June 21, p. 415.
Cypripedium insigne Holfordianum, Dec. 6, p. 413.
Cypripedium × Mrs. Wm. Mostyn, Feb. 1, p. 75.
Cypripedium × Transvaal superbum, Nov. 15, p. 361.
Cypripedium × Venus Oakwood variety, Feb. 8, p. 91.
Dendrobium taurinum, Feb. 8, p. 90.
Dendrobium Wardianum Fowleri, Feb. 22, p. 125.
Lælia anceps Chamberlainiana, Feb. 1, p. 71.
Lælia anceps Hollidayana Crawshayana, Feb. 22, p. 123.
Lælia × Digbyano-purpurata Edward VII., Coloured Supplement, June 21.
Lælio-Cattleya × Queen Alexandra, Coloured Supplement, June 21.
Lælio-Cattleya × Adolphus superba, Aug. 16, p. 111.
Maxillaria fractiflexa, May 31, p. 359.
Maxillaria scurrilis, October 4, pp. 243, 245.
Odontoglossum × Adrianæ Mrs. Robt. Benson, April 12, p. 249.
Odontoglossum × Adrianæ Cooksoniæ, June 14, p. 389.
Odontoglossum × ardentissimum, July 26, p. 50.
Odontoglossum × Edwardus Rex, June 21, p. 414.
Odontoglossum crispum Miss Lucienne Linden, May 3, p. 289.
Odontoglossum × Wilckeanum Rothschildianum, Supplement, December 6.
Oncidium × Mantini superbum, Nov. 15, p. 351.
Phalænopsis amabilis Rimestadiana, Supplement, October 25.
Phalænopsis Lowii, November 8, p. 343.
Zygo-Colax × Wiganianus superbus, March 8, p. 156.
Zygonisia × Rolfeana, July 19, p. 30.

FIG. 1.—AMIENS: A VIEW IN THE MARKET GARDENS. (SEE P. 1.)

Cypripedium insigne Fowlerianum, C. Wardianum Fowlerianum, and Lælio-Cattleya × Bletchleyensis Fowler's variety.

Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), had for his best exhibits of the year, Phalænopsis Sanderiana Wigan's variety, Cypripedium Godefroyæ leucocheilum pulchellum, Sobralia × Wiganiæ, Cattleya × Wavriniana Wigan's variety, C. × Prince Edward, and Miltonia vexillaria gigantea.

Sir Trevor Lawrence, Bart., Burford (gr., Mr. W. H. White), still retains his partiality for fine species and rare botanical plants; no fewer than a dozen awards for new or rare species being given to specimens in his interesting group at the last Temple Show.

Captain G. L. Holford, C.I.E., Westonbirt (gr., Mr. Alexander), has been one of the largest exhibitors of the year, his best being Cypripedium insigne Holfordianum, Odontoglossum × Mrs. Robt. Benson, O. × Adrianæ Sibyl, O. × Loochristyense Lady Victoria Grenfell, and Sophro-Lælia × Orpetiana.

Good things were also shown by other

NEW OR NOTEWORTHY PLANTS.

CRASSULA DECIPIENS, N. E. BROWN (N. SP.).

THIS novelty has one of the most remarkable leaf-surfaces that I have seen, being quite unlike that of any other plant known to me save one, which is either another new species allied to the present one, or a variety of it, having the same kind of leaf-surface. As seen under a lens, the surface of the leaves is exceedingly pretty. Few people would be able to feel certain as to whether this plant, when out of flower, was a Cotyledon, a Crassula, or a Mesembryanthemum, so distinct is it from any described species, and yet bearing some indefinite resemblance to all three genera. It is perhaps more nearly related to C. namaquensis, Schönland and Baker, than to any other species. Living plants of it are in cultivation at Kew, where they were received this year from Mr. H. J. Chalwin, of Cape Town Botanic Garden; and a flowering specimen has recently been sent to Kew from the rich collection of Mr. C. Darrah, of Holly Point, Heaton Mersey.

A dwarf tufted perennial about 1½ inch high, exclusive of the flowering stem, breaking into numerous very short crowded branches close to the ground, densely leafy, without distinct internodes; leaves all radical, opposite, sessile, crowded, ascending-spreading, thick and fleshy, to 1¼ in. long, 3½ to 7½ lin. broad, ¼ to ⅓ in. thick, oblong, elliptic-oblong, or somewhat spatulate-oblong in outline, obtuse, flattened on the upper side, very convex on the back, whitish, light greenish-grey or somewhat bluish-green, with a very remarkable surface, the whole leaf being densely covered with blunt papillæ with hard, white tips (probably an incrustation of carbonate of lime); these papillæ are separated in a somewhat tessellate manner into small groups by the surface being traversed by numerous transverse and longitudinal irregular crack-like lines. Flowering stems terminal, erect, about 2 inches long, 1⅓ lin. thick, terete, densely covered with minute papillæ, slightly scabrous to the touch, whitish-green, bearing one pair of bracts below the middle, otherwise leafless. Bracts adpressed to the stem, 2½ lin. long, 1½ lin. broad, ovate-oblong, sub-obtuse, connate at the base, flat on the face, convex on the back, papillate like the stem, ciliate with short, deflexed hairs. Cyme terminal, three-branched, about ⅔-inch in diameter, convex at the top; branches about 2 lin. long, terminated by a small, dense head of ten to twelve sessile flowers. Bracts like those on the stem, but gradually smaller. Sepals five, erect, ¾ lin. long, ½ lin. broad, oblong, obtuse, papillate, with a few hairs on the back, ciliate. Petals five, free, erect, 1⅓ lin. long, rather more than ½ lin. broad, oblong, obtuse, with no distinct dorsal apiculus, slightly concave, glabrous, white. Stamens five, included, scarcely 1 lin. long, glabrous; filaments white, anthers yellow. Hypogynous glands ¼ lin long and broad, subquadrate, emarginate, concave, yellow. Carpels five, erect, ¾ lin. long, compressed ovoid, narrowed into a short style, glabrous, pale greenish. *N. E. Brown.*

THE GRANGE, HIGHBURY NEW PARK.

PASSING along a busy thoroughfare that is situated within 4 miles of Charing Cross, the attention of the passer-by is drawn to two massive pillars which flank the entrance to the grounds of F. Bishop, Esq., The Grange, Highbury New Park. The mansion is pleasantly situated, and the small estate is enclosed by a high wall; masses of fine shrubs exclude the public gaze, and once within the gardens it were easy to imagine oneself a hundred miles from London. Mr. Bishop is an enthusiastic horticulturist while Mrs. Bishop and their daughters share his good taste, and take a lively interest in everything that pertains to the garden. The grounds, more than 4 acres in extent, were laid out by the present owner, and his gardener, Mr. E. Easey.

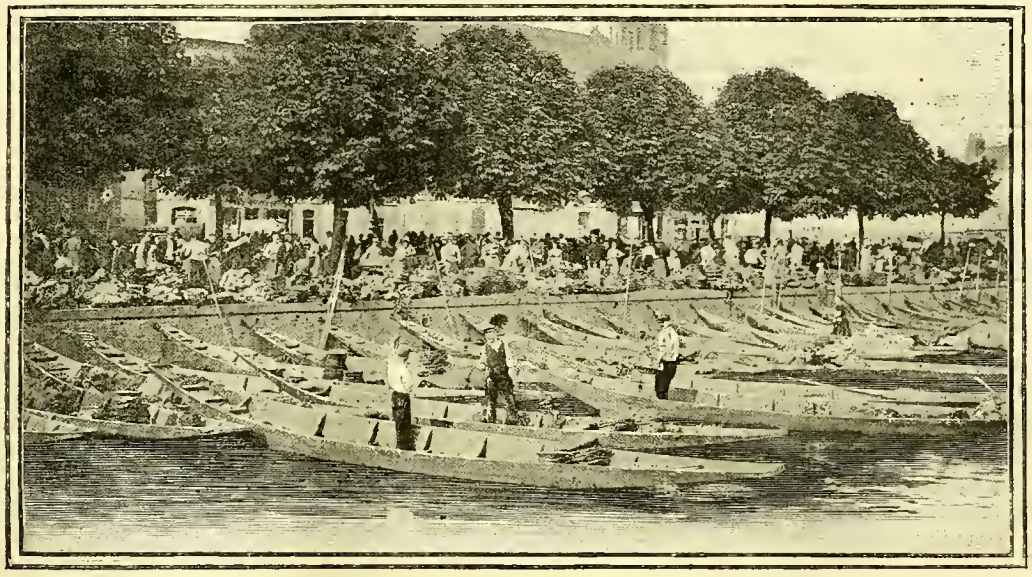

FIG. 2.—AMIENS: THE VEGETABLE MARKET ON THE QUAY. (SEE P. 1.)

PLANT NOTES.

GLAUCIUM FLAVUM TRICOLOR.

I NOTE that this fine plant, as showy in general effect as it is unique in colour, has this year reached the seedsmen. They generally describe it as an annual, but this is a mistake. It flowers the first year from seed, but in the autumn it pushes up strongly from the roots, and flowers again in the ensuing summer. Whether it would persist to a third year I cannot say, as I have always had to move my plants at the end of the third year, and they cannot stand such moving. The adjective tricolor makes one suspect a garden variety. The plant, however, is truly wild. It was discovered by Mr. Whittall on some mountains near Smyrna. Mr. Whittall was attracted from a long distance off by the extraordinary effect made by a colony of it. Its colour approximates more nearly to the Austrian Copper Briar than to any other plant I know. But the Briar lacks the wonderful metallic lustre of the Horn Poppy. In saying this, however, I must exclude the Persian G. Fischeri, which is possibly another form of the plant. From a garden point of view, however, G. Fischeri is very inferior; its flowers are smaller, they are so sparsely produced as always to fail in making an effect, and, at any rate, in my garden, they persistently refuse to open. *A. K. Bulley, Ness, Neston, Cheshire.*

Capital specimens of Hollies have been freely planted, with particularly pleasing effects. At the time of my visit Chrysanthemums were in full beauty. The plants numbered one thousand of all sections, and exceedingly well grown, Mr. Easey being a cultivator and exhibitor of repute. Special attention is given to trained plants, and in this direction Mr. Donald's mantle seems to have fallen on Mr. Easey. I observed more especially the group out of which were selected the plants that won premier prize at the National Chrysanthemum Society's November show. There were very fine examples of Miss Watson, Col. W. B. Smith, President Nonin, Com. Blusset, Eva Knowles, W. Trieker, and Cleopatra. The incurved varieties formed a very fine lot, and those of the Japanese section were most excellent.

As cut flowers are in great demand, bush plants are largely grown in early and late flowering varieties. At the time some fine Tuberoses were likewise in bloom. About five hundred Carnations, consisting of the more popular varieties, are grown in pots — fine healthy plants that promised a plenteous crop of flowers.

In the Orchid-house I observed well grown plants of Cœlogynes, Cypripediums, Cattleyas, Lælias, Dendrobiums, and Odontoglossums. The garden possesses a delightful fernery, and well-grown plants of Adiantum, Gleichenia, Cheilanthes, Pteris, &c., were plentiful. In the stove

representative collection of table plants and others, Codiæums, Dracænas, Cocos Weddeliana, Aralias, Kentias, Araucaria excelsa, and Pandanus are grown.

The vineries, which are large and lofty, are planted with Black Hamburgh, Muscat, and other varieties, all of which crop excellently. A few Grape-vines are grown in pots for early fruiting. There are two houses about 80 feet long, each containing magnificent specimens of Camellias of very large size, most of them being about 24 feet high. They were heavily set with flower-buds. In addition, there were in these houses some Orange-trees of large size, as well as specimen Dracæna lineata, and numerous Azaleas. Of other plants I noticed splendid specimens of Rhododendron Lady Ilume and R. arboreum.

The forcing houses contained Richardias, Eucharis grandiflora, Lilacs, Azaleas, Viburnums, &c. In the conservatory were to be noted Chrysanthemums, Begonias, large specimen of Kentia, Cyathea, Dicksonia, and Seaforthia. From the roof were suspended baskets of Ferns, Asparagus plumosus, and Begonias. There are a lawn, and tennis and croquet grounds all admirably maintained.

An orchard exists which contains most of the best varieties of Apples, Pears, and Plums; and small fruits are grown in large quantities. The kitchen garden affords in abundance most excellent vegetables.

Highbury is not quite an ideal district for successful gardening either indoors or out, but this notwithstanding, Mr. Easey, by patience and skill, manages to obtain results not to be excelled by good gardeners in country places. *Traveller.*

FLORISTS' FLOWERS.

THE CHRYSANTHEMUM AS A MARKET PLANT.

THE production of the Chrysanthemum for market is increasing, and its brilliance and durability makes it of great value in mid-winter, and especially at the Christmas season, when flowers are in such great request. One of the leading cultivators for market is Mr. Norman Davis, Framfield, Sussex, and the leading varieties he cultivates and sends into the market may be accepted as illustrating the leading varieties best suited for the purpose.

The market season may be said to commence in September, and the earliest variety to enter Covent Garden market is Madame C. Desgranges, a variety well known, and widely cultivated. It is grown in immense quantities, both as finished specimen blooms, and in the form of smaller blooms for bunching. Some growers for market cultivate Madame C. Desgranges by the acre: it is lifted from the open ground, and placed in houses which have been cleared of Tomatos; while others depend upon a supply of bloom from the open ground. Like many other once popular Chrysanthemums, it is losing its former vigour, and at no distant date may be entirely superseded.

Two good first early white varieties of more recent introduction are Market White and Mytchett White. The latter is the earlier, and produces flowers of greater purity, but it lacks the constitutional vigour so much desired in a market variety. A more recent introduction still is Parisianum, of the purest white, the blooms as large as those of Madame C. Desgranges, but more vigorous in constitution; the flowers are good, and very early, but being new, it has yet to stand the test of adaptability for market work.

For the first two or three weeks of the season, say, up to the second week in September, white Chrysanthemums are the only ones to find a ready sale; but after that time, other colours, and especially yellows and bright pinks, are in demand. Among the earliest of these colours to find their way to market are Mrs. Hawkins, the yellow form of Mme. C. Desgranges; Horace Martin, a splendid and most useful sport from Mme. Marie Massee, undoubtedly the finest yellow among the early varieties; O. J. Quintus, a pleasing rose-pink; Mme. Marie Massee and Mons. G. Grunewald, also of shades of pink; Harvest Home, crimson and gold; Louis Lemaire, bronzy yellow; and Queen of the Earlies, creamy-white.

Second early varieties go into the market from the end of September and through October; they are very numerous, but the following may be regarded as the most popular varieties:—William Holmes, bright crimson, and Crimson Pride, of a deeper shade of crimson; Roi de Précoces is also a useful bright-coloured variety; Ettie Mitchell and Source d'Or are the two leading varieties of a bronzy-orange tint; Raoul d'Allard is a rich orange-bronze of recent introduction, and is likely to become a great favourite for what are known in the market as cheap bunches, is exceedingly free of bloom, and possesses a good habit of growth; Goacher's Crimson is still another fine crimson of recent introduction, and promises to become popular; Ryecroft Glory is a well-known orange-yellow, and it is very largely grown, both as a pot plant and for cut bloom; Lady Fitzwygram is also largely grown as a pot plant, on account of its dwarf growth, and very fine plants in small pots are in great demand; Lady Selborne, a well-known white, is also largely grown for market. A little later, and merging into the mid-season varieties, comes Elaine, one of the oldest, and still one of the most useful Chrysanthemums grown; also Soleil d'Octobre, a very popular sort; and a bronzy-buff known as Bronze Soleil d'Octobre, which is also much cultivated as a pot plant.

The end of October and through November marks the mid-season time, when the varieties are very numerous; but a select few, such as those which produce good stems and leafage, are the leading types. Of these Viviand Morel, mauve, and its sport Charles Davis, bronze, find the greatest favour; Mrs. Barkley, and Mrs. George Mileham, both of recent introduction, have already become great favourites—both are of pleasing pink shades. There is still another of the same shade of colour, and one likely to supplant Viviand Morel, namely, Nellie Bean, of a charming shade of lavender-pink; this is most promising as a market subject. Good yellows are to be found in W. H. Lincoln, Phœbus, Mrs. Greenfield, like Phœbus, but with broader florets of a deeper tint; Clinton Chalfont, and Mabel Morgau, the latter a recent introduction of a rich butter-yellow colour, and an excellent habit of growth. Edwin has been the leading crimson for some years for cut blooms at this time of the year; but is likely to find a formidable rival in Violet Lady Beaumont, the colour is a rich deep crimson, the blooms solid, and carried on long stiff stems, while the habit of growth is excellent.

To follow Elaine, such whites as Gladys Roultaud, Mdlle. Lacroix, are grown, the former a very pretty Japanese having pure white flowers. Etoile de Feu is a bright crimson with a gold reverse, and is found very useful. Large exhibition blooms find but a limited sale at high prices when fresh and of good colours. Mr. Davis states that fine blooms of Madame Carnot, Mrs. Barkley, Richard Dean, G. J. Warren, and other large flowered varieties will fetch in the market from 9s. to 12s. per dozen.

Probably the most useful of all the market Chrysanthemums are the late varieties, those from which the market supply is drawn through December, and into the new year. One of the most popular varieties is Madame Felix Perrin, better known in the market as Framfield Pink, under which name it was originally introduced by Mr. N. Davis; this is an excellent variety on all points, and commands good prices. The leading late white Chrysanthemums are Mme. Thérèse Pankoucke, Niveum, Mme. Phillipe Rivoire, L. Canning, and Western King, the latter more especially in the character of specimen blooms, and it is one of the most useful. A new white recently introduced by Mr. W. J. Godfrey, Exmouth, is Winter Queen, a very beautiful variety, forming charming sprays of bloom, and it is one of the latest. Tuxedo and Miss Jessie Attie are the two favourite varieties with bronze shades; while King of the Plumes and Golden Dart are two capital late yellow flowered varieties. It may, of course, be taken for granted that Chrysanthemums which are most useful for purposes of the market are equally of service in other ways.

Single and other light decorative Chrysanthemums are now somewhat largely grown in private gardens for house and home decoration at this season of the year, but are of no value for market purposes, being too fleeting. The most popular singles are Mary Anderson, white; Miss Rose, pale pink; Earlswood Beauty, light primrose; Daisy Brett, pure white; Framfield Beauty, rich crimson; Eucharis, a fine white; Admiral Symonds, golden-yellow; Rev. R. Remfrey, bronzy-crimson; Miss Annie Mumford, bronze and orange-crimson; Edith Pagram, bright pink; Golden Star, golden-yellow; and Mrs. D. B. Crane, cerise-pink. Light decorative varieties are to be found in Mrs. Filkins, Mrs. Jas. Carter, Cannell's Favourite, Golden Thread, and the two miniature Pompons Snowdrop and its yellow form. *R. D.*

THE SWEET PEA.

MR. BROTHERSTON'S remarks on the Sweet Pea recall to mind that northerners have now amongst them a gardener who may be termed the champion exhibitor of the popular flower under notice, namely, Mr. W. Simpson, of Wemyss Castle, East Fife, and late of The Grange, Sutton. For two successive years Mr. Simpson proved his superiority as a grower by winning the principal prize at the National Exhibition of the Sweet Pea Society, effectively staging grand bunches of highly-coloured flowers. In many parts of the country the lateness of the flowering of Sweet Peas last year was almost as noticeable as the prolonged season of blooming mentioned by Mr. Brotherston. In southern Hampshire we could not pick a bloom before the last week in June, and this from plants raised in pots and carefully transplanted, which ought to have flowered at least a week in advance of those sown in the ordinary way.

The adaptability of the Sweet Pea for pot-culture, as a method for securing earlier flowers, is not so fully recognised as it might be, considering the popularity it has gained during recent years. A dozen or so of 12-inch pots, planted with various colours, afforded us delightful bunches long before we were able to cut from outside, and well repaid any extra attention required. Salopian, Gorgeous, Prince Edward of York, Queen Victoria, and Lovely were the varieties grown.

As every gardener knows, constant removal of the seed-pods is the chief point in lengthening the flowering season, more especially on thin, light soils. But late sowings must be resorted to, to maintain a succession of long-stemmed, high-class blooms in August and September, such as are favoured by florists and exhibitors. Thin planting or sowing is also another help to success, as every good seed will produce several strong growths, and without these it is useless to expect fine flowers.

The light blues or lavenders, orange-scarlets, and crimsons seem to catch the public fancy most, although some of the striped varieties are

quite as attractive in their way as are many of the fancy Carnations. All the distinct and varied colours could be included in two dozen varieties, yet new or improved varieties crop up every year. A good yellow has still to be found, and our nearest approach to a scarlet is still a few shades removed from that tint.

Of recent introductions Miss Willmott is one of the best, though differing but slightly in colour from Lady Mary Currie; Gorgeous, of a similar shade, though a smaller bloom, is the most distinct in this colour, more especially so in the bunch. Mr. Simpson staged this variety, beautifully coloured, at the National Society's show in July. With care, the Sweet Pea can be propagated from cuttings. This method is only useful to anyone who has been fortunate to raise a new variety, and has failed to obtain much seed. A good percentage of cuttings made from strong side-shoots will root, if inserted in sandy soil, and placed under a hand-light in a cool house. *T. H. Bolton, Baron Hill.*

PLANT PORTRAITS.

ARACHNANTHE CATHCARTI.—*Wiener Illustrierte Garten Zeitung*, December.

PEARBEURRÉ SUPERFIN.—*Bulletin d'Arboriculture, &c.*, December.

TRUSTED SERVANTS.

THE illustration (fig. 3) shows the garden staff at Wrest Park, the Bedfordshire seat of the Right Hon. Earl Cowper, K.G. Taking into account the long term of service of many of the gardeners there depicted, it is very questionable if such a record can be excelled in any other nobleman's or gentleman's garden in the country. The combined services of the *employés* form a record of 391 years, several of the men having been employed in the gardens for the long period of fifty-six, fifty-three, fifty-two thirty-two years, and so down to two years. After such a length of faithful service, they are still active, intelligent, and energetic, and seldom absent from their daily employment.

The married men are comfortably housed in several of the lodges in the park, and others in the beautiful and picturesque village of Silsoe, long renowned for its beauty and sanitary arrangements, also for its ample convenience as regards church, school, postal, and telegraph accommodation. The rents charged the garden *employés* for their cottages in the village are exceedingly low, but not quite nominal; and his lordship, with his usual generosity, when the allotment system was first introduced, had a large field in close proximity to the village laid out in allotments for the garden men and other workmen on the estate. Thus by successful cropping they can keep themselves well supplied all the year round with a bountiful supply of fresh vegetables, which are indispensable in the cottage of the peasant.

Another great feature is his lordship's coal club and the countess's clothing club. The garden *employés*, &c., pay into these clubs weekly, and at the end of the year there is a substantial bonus added to their weekly subscriptions. By this means they are able to get in their yearly supply of coals during the autumn, besides a great many more household comforts; and I am not exaggerating when I say the men are as satisfied and contented as are those of any employer, whoever he may be. *George MacKinlay, Wrest Park Gardens.*

FIG. 3.—THE GARDEN STAFF AT WREST PARK, AMPTHILL.

IRISH HARDY FRUIT.

As I happen to be the correspondent responsible for the original article written on the above subject, p. 426, ante, which Mr. A. Dean has done me the honour to read and corroborate, p. 443, I should like to supplement that report by adding that these conclusions are not arrived at from the experience of one season only, but from a series of seasons.

From conversation with one of the leading prize winners on the second day of the show, I gathered that these best coloured Apples were produced from an orchard under grass, and he advanced quite a new theory to me, viz., that Apples always coloured better when grown on grass land, than those grown on arable or cultivated land. Be this as it may, the colour was all that could be wished, the specimens were clean, large, and of perfect shape, but the names showed a little discrepancy. Personally, I am a little sceptical upon the above theory—what say other growers

I do not hold any brief for this Society, or even for Ireland, yet after seeing the repetition of such displays of hardy fruit, there can be "no possible shadow of doubt whatever," but that real high-class fruit is produced, and can be produced *ad lib.* in certain districts in "Ould Ireland," where skill and intelligence is brought to bear upon their cultivation; indeed, one can already hear of cultivators in the northern part of the country with their 20 acre and upwards plantations. Mr. Dean asks "Why should not Ireland as well as Canada, become a fruit producing country?" Doubtless she will in the near future, if she will apply the same principles to fruit-growing as she is already doing in the matter of creameries and exporting butter, especially if she will proceed on a similar system of co-operation, so as to create a registered brand, and a system of packing and grading, similar to that so advantageously followed by the Dutch, as portrayed in your leader on p. 438. As a matter of fact, the old country has also yet to learn this difficult problem, before real success in hardy fruit growing will be achieved.

In passing, I might say that I should like to see this progressive Ulster Society adopting the same conditions in future, as are imposed by the Royal Horticultural Society in the class for twenty-four dishes, viz., sixteen dishes culinary, and eight for dessert, shown in accordance with their code as to the distinctive sections. This brings the competitors more into line and uniformity, and establishes a standard for competitors and judges to work up to, and diminishes the risks arising from the vagaries of any individual judges.

So far as one could gather from conversation, the reason why we do not get any entries from the sister isle at the annual exhibition of British grown fruits, hitherto held at the Crystal Palace, to wit, class fifty-eight, open to Ireland only, seems to be that growers in that country are not aware of the facilities offered by the Royal Horticultural Society, whereby in addition to the first and second prizes, the exhibitor's railway fare is also paid to London, and there is a most expeditious service from Belfast to London, viâ Fleetwood.

It is to be hoped that now the matter is being ventilated, the proper authorities will in future place the necessary information before our Irish friends, extending the right hand of friendship so as to promote that healthy rivalry so beneficial to one and all concerned. I venture to predict that if the best growers can be induced to come over next season to Chiswick, they will be able to render a very good account of themselves, both in their own section and in many open classes. This need not be wondered at, for the nurserymen of that country are prepared to supply splendidly grown trees in large quantities. A chance visit to Messrs. Hugh Dickson & Sons, Royal Irish Nurseries, revealed quarter after quarter of healthy, vigorous, well-rooted trees, with the kindest and cleanest growth possible.

It is to be feared we old country fraternity do not always give our warm-hearted brethren of the sister isle all the credit that is justly due to them, forgetting that nowhere else in the United Kingdom can there be seen such marvellous collections of choice and extremely rare varieties of hardy flowering shrubs, trees, and Coniferæ, as are to be found at such places as Castlewellan Powerscourt, Narrow Water, &c. Besides, where is there such an interesting nursery of choice titbits and healthy rare plants as Smith's of Newry? to say nothing of the natural landscape of so many beautiful places; in fact, Ireland is an ideal place for the lucky gardener to spend his holiday. *W. Crump, Madresfield.*

The Week's Work.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Hints on Work in General.—With the advent of the new year, all work in this department should be forwarded as far as possible, and preparatory work of all sorts should be pushed on with vigour. Trenching is of the utmost importance in most gardens, even if the soil be shallow, when it is advisable to turn the top spit in the usual manner, and break up the subsoil for another 12 or 18 inches, but leaving it in its place. In some places the gardener, owing to the smallness of the garden staff, is prevented from carrying out as much trenching as may be desirable, still some portion of the vacant land may be trenched, and such land will always afford the best crops. In cold, wet, and stiff soils trenching should be deferred till the end of the month of February or till March. Nothing is more useful in practice than a plan of the kitchen garden, showing the plots the various vegetables will occupy during the year.

The Seed Order.—Before finally making out this list, it is advisable to examine the nurseryman's catalogue, and indicate the probable quantities of each kind and variety of vegetable that may be required. Most gardeners are acquainted with the names of the varieties that succeed in the district in which their garden is situated, and with the nature of the soil. A few novelties should be ordered for trial, in order to ascertain their suitability or otherwise, but too much reliance should not be placed upon them. On the whole, that gardener is wise who relies chiefly upon tried favourite varieties.

Forcing Asparagus.—Whether dung-beds constructed about 3 feet high, or hot-water pits be employed, the top heat must not exceed 60° or 65°, and that of the bed 70° to 75°. The glass of pits or frames should be covered with mats and litter on cold nights, or mats simply if thicker covering be not needed. This admits of applying air in small quantities at night, and by day as much may be admitted as the heat of the frame or pit will allow, for if this be not attended to, the shoots will be drawn, and without much flavour. Roots that are beginning to produce weak shoots should be replaced with others. After planting in the bed, afford tepid water in sufficient quantity to soak the soil.

Seakale.—Continue to place crowns in the Mushroom-house, or any dark place where the temperature is kept constant at from 50° to 55°. The old method of forcing Seakale in pots in the open by means of fermenting tree-leaves and litter is seldom practised now, although the produce is much superior to that forced by any other method. The crowns should be slightly covered with finely-sifted coal-ashes, and over each clump a Seakale-pot should be placed, and the bed made up with the warm fermenting material. The heat of the bed should not exceed 75°, nor be less than 70°. Rhubarb may be forced in the same manner.

Tomatos.—The plants which were raised from seed early last month should be planted in large 48's, in moderately light turfy loam, with a small quantity of bone-meal and soot, and some coarse silver-sand mixed with it, the mixture being warmed so as to avoid checking growth. Place the plants near the glass in a house or pit having a temperature of 60°. Apply water carefully, and only when the soil has got dry. Pinch off the laterals as fast as they appear. Fertilise the blooms of plants of a fruiting age, using a camel-hair pencil in doing this, and afford liquid-manure twice a week. The fruits should be cut when they begin to colour. Maintain a fairly dry air in the house, and admit air on favourable days for a few hours. Sow seeds in well-drained pans for succession, in a mixture of leaf-soil three-quarters, loam one-quarter, and add some coarse silver-sand. Sow the seeds thinly, barely covering them, and as soon as the seedlings appear above ground, place the pans on a shelf near the roof-glass.

FRUITS UNDER GLASS.

By T. H. COOK, Gardener to His Majesty THE KING, Sandringham.

Vines.—The Vines started in November for producing early Grapes, whether in pots or borders, will have now burst their buds and commenced to form growths. Afford a slightly increased temperature, 55° to 60° at night, with a rise of 10° during the day, more or less according to the state of the weather. Syringe them with tepid water twice daily, and maintain a moist atmosphere by an occasional damping of the paths and walls. Husband all the sun-heat possible, and at no time heat the hot-water pipes unduly Ventilate sparingly by the top ventilators on very fine mild days.

Succession Vineries.—Prune, cleanse, and prepare succession Vines, and close the house for forcing as may be required. In pruning the canes, cut to a strong plump bud, whether it be placed two or more nodes from the base of the lateral, a good crop of Grapes being the first consideration, the trim appearance of the rods a secondary matter. If the Vines are young bearing rods, cut back the leaders more or less according to their strength, that is to within 2 to 4 feet of last year's growth. Regulate the spurs, which are often too numerous, so that each lateral may have sufficient space for the full development of its foliage. If the Vines were free from insect pests last year, a good washing with an approved insecticide will be all that is necessary to cleanse them; but if affected with red-spider, thrip, or mealy-bug, more drastic measures will have to be adopted. Remove all loose bark, and scrape and expose every possible hiding-place, great care being taken of the buds. Scrub over with an insecticide, and finish off by stopping up all holes or cavities around the spurs with coloured putty or similar material. This latter will be found most helpful in dealing with the complete eradication of these pests afterwards, mealy-bug in particular. Previous to dressing the Vines, wash down or (if necessary) paint the woodwork of the vineries; fill up with cement all holes and crevices in the walls, and finish off by lime-washing them.

Borders.—Scrape off and remove all loose soil, point over the surface soil, and give a top-dressing 2 to 3 inches thick of good loam, to every barrowful of which has been added a 7-inch potful of bone-meal, a little charred garden refuse or charcoal, and mortar-rubble. Previous to starting the Vines, apply water, so as to thoroughly moisten the soil, the quantity being determined by the depth and porosity of the borders. If not already done, cut and remove the bunches of late Grapes to the Grape-room, and afford the Vines all the air possible night and day. Close for forcing the early Muscat vinery or other houses from which ripe Grapes are expected in about five months' time.

Peach and Nectarine-Houses.—The trees in the early houses which are in flower or approaching that stage, should now have a night temperature of 50° to 55°, and during the day one of 10° higher. Maintain a buoyant atmosphere, and admit air by the top ventilators when the weather permits. Before the flower-buds burst, it is good practice to fumigate or vaporise the house, which will ensure freedom from aphis till some time after the flowers are set. Fertilise the flowers daily about mid-day, using a rabbit's-tail secured to the end of a long stick to distribute the pollen.

Melons.—Seeds should be sown in thumb-pots, plunged in a bottom heat of 75° in a propagating pit. Plants raised from seed sown a month later will often produce fruits as early as the plants raised at this date, but should the weather be fine, a slight advantage is gained by present sowing.

Cucumbers.—Plants in bearing at this season require an abundance of heat and moisture, and all the light possible; a night temperature of 65°

and one by day of 75°, and at this time of year as much higher as the sun may raise it. Slightly syringe the foliage with tepid water on fine days, crop lightly, and cut as soon as the fruits attain to a serviceable size, to enable those left the better to develop. Encourage root action by light top-dressings of sterilised leaf-mould three parts, and good loam one part. Sow as advised for Melons.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESQUE, Esq.' Dropmore, Maidenhead.

Pruning and Cleaning Orchard Standards.—The present is a good time for carrying out this kind of work, and a commencement should be made by cutting out all intercrossing branches, leaving the remaining branches in such a manner as to secure an evenly balanced crown. Wherever a saw is employed in removing big branches, the cut surface should be smoothed with a knife or a pruning-chisel; the main branches should then be cleared of moss, a piece of bent hoop-iron being used for this purpose. In some gardens the old-fashioned practice of lime-washing the trunks and main branches is still carried out; but where time permits, it is better to use an alkali wash in February, as then all parts of the trees can be reached by the syringe or engine. If farmyard manure-water can be obtained, a good application at this date would benefit the trees, care being taken that it is used in a much-diluted state, and during mild weather.

Planting.—Where this remains to be carried out, no time should now be lost. In the case of aged trees, if the soil can be removed and replaced with fresh soil where the trees are to be planted, it will be of great help in affording them a good start. Make the holes 3 feet by 2 feet, and for strong-growing varieties of Apples let them be 24 feet apart. Good culinary varieties are Gloria Mundi, on heavy soils only; Wellington, Beauty of Kent, Blenheim Orange Pippin, Bramley's Seedling, Striped Beaufin, Lane's Prince Albert, Ecklinville, Alfriston, and Potts' Seedling; dessert varieties: Cox's Orange Pippin, King of the Pippins, Court Pendu Plat, Gravenstein, Irish Peach, Devonshire Quarrenden, Cornish Gillyflower, Sturmer Pippin, and Claygate Pearmain.

Pruning Pyramid Apples and Pears.—Take advantage of the present mild weather to push on with the pruning operations. Where the Apple is grown as bushes or pyramids on the Paradise stock, and root-pruning is practised, as it should be, not much pruning will be required. The varieties Irish Peach, Cornish Gillyflower, Cox's Orange Pippin, and a few others, mostly have fruit-buds at the ends of the shoots, a fact to be borne in mind when pruning the same. In the case of young trees of the Apple and Pear, the leading shoots should be cut back to a length of about 1 foot, taking the precaution to prune to a bud pointing in the direction the shoot is required to grow.

The Fruit Room.—Apples and Pears are not keeping well this season, and the fruits need frequent inspection, removing all decaying specimens. Pears in most gardens will soon be over, but Olivier de Serres, Duchess de Bordeaux, Winter Nelis, and Josephine de Malines, will assist in the dessert for some weeks longer.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

The Stove.—During the next few weeks the occupants in these structures should not be excited by affording them a high temperature, which usually induces an early infestation of the plants by insects, especially thrips and red-spider. A temperature of 60° on very cold nights, and 65° when the weather is mild, with a rise of 5° to 10° during the day, will be better for the health of the plants than a higher degree of warmth. Applying water to the plants is an important matter at this season. Before affording it, each plant should be carefully examined as to its needs; and the syringe should not be too frequently used. The early morning hours after root water has been applied is the best time for this operation, and it will suffice to damp the stages and floor once or twice a day. Flowering plants should not be syringed, or the display of many will be cut short. There will now be no lack of colour of Eranthemum pulchellum, Euphorbia Jacquiniæflora, and E. pulcherrima, Reinwardtia trigyna, Coleus thyrsoideus, Justicias, Plumbago rosea, and several Begonias, not omitting the beautiful Gloire de Lorraine, and Gloire de Sceaux, the latter just coming into flower, are grown. Where the lovely Rondeletia speciosa is planted out, in a narrow border and given plenty of light, there will be no lack of flowers during the next two weeks. Crotons, Dracænas, and similar large leaved plants, if infested with mealy-bug, should be sponged or syringed with warm soap-suds alone, or a wineglassful of petroleum may be put into four gallons of water and kept agitated while in use.

Conservatory or Greenhouse.—Endeavour to maintain these structures in as bright a state as possible, by introducing fresh flowering plants at intervals of a week or ten days. There are several varieties of Chrysanthemums still serviceable, viz., L. Canning, Madame P. Rivoire (a beautiful white), Mrs. C. Harman Payne, Jane Molyneux, Mrs. Barkley, Chatsworth (a lovely flower), Matthew Hodson, Francis Coppice, W. H. Lincoln, M. Simpson, and a single variety, Sir Redvers Buller. Among Azaleas there are Narcissiflora, Deutsche Perle, and Fielder's White, good for early forcing, requiring but little heat to get them into flower in the first month of the year. These, with Cyclamens, Primulas, Roman Hyacinths, Paper-white Narcissus, and the earlier Cinerarias, Salvia rutilans and Heeri, Cytisus, Freesias, and Coronilla glauca, help to make a good display at this season. The night temperature of the houses in mild weather should not exceed 50°, or fall below 40° on frosty nights. Afford ventilation by day on all favourable occasions, but avoid cold draughts.

Forcing-pit.—Introduce at short intervals Spiræa japonica and S. astilboides floribunda, Deutzias, Staphylea colchica, Dielytra spectabilis, Lily of the Valley, Azalea mollis, Narcissus, Tulips, and the white Italian Hyacinths, the last-named to follow the early Roman, which, having long spikes, are very useful as cut flowers. A gentle bottom-heat may be afforded Lilies, Spiræas, and Dielytras, which will suffice to bring them quickly into growth, if covered with moss and kept moist, and syringed two or three times daily over all. Let the night temperature be from 58° to 60°, with a rise of 5° or 10° by day, according to the weather.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

The Heating of the Houses.—At this season all Orchids require artificial heat more or less, even those of the coolest house should have a little heat at all times, admitting air at the same time. This is preferable to keeping the house closed without warmth in the heating apparatus; yet, on the other hand, I do not hesitate to say, that more Orchids are ruined in this country by the excessive use of fire heat than from any other cause. I therefore advise the greatest care to be exercised in its use at all seasons. A common mistake in the heating of Orchid-houses in providing too little piping, with the result that the fires must be driven and pipes kept needlessly hot; whereas, were the pipes more numerous, the heat of the water might be much less, with advantage to the plants. Moreover, the extra cost of piping is as nothing compared with that of fuel in endeavouring to keep up heat with too little heating surface.

Temperatures.—It is not desirable to lay down a hard-and-fast rule in regard to temperatures, but the following figures will afford tyros a guide for the present. The higher figures are reached at noon, and the lower ones in the early morning, and in accordance with the state of the weather; and a few degrees lower than the lowest will not cause injury in very severe weather:—East Indian-house or stove, by day, 68° to 75°; by night, 60° to 65°. Cattleya-house, by day, 62° to 68°; by night, 58° to 62°. Intermediate-house, by day, 58° to 62°; by night, 55° to 58°. Cool or Odontoglossum-house, by day, 55° to 60°; by night, 50° to 55°.

Damping-down and Ventilating.—Particular attention should be paid to the atmospheric conditions of the house during the dull days of winter, and in mild weather, when but a small amount of heat is afforded, as at such times very little damping-down is required. In time of hard frost, when much fire-heat becomes necessary, damping-down is often called for to correct the dryness of the air. More especially should the space beneath the hot-water pipes be heavily damped-down, but on no account let the water come into contact with the heating apparatus so as to cause vapour to be thrown off, or much damage may be occasioned. Admit air to the various houses whenever the external conditions are favourable, and afford it in small quantity night and day by the lowermost ventilators, excepting in frosty weather.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Protection.—The old adage, which tells us that cold strengthens as the days lengthen, should act as an incentive to all who grow in the flower garden and pleasure grounds things that are at all tender, to see that the various means used for their protection are applied or placed handy when the need to use them arrives. Yuccas should have many of their old leaves drawn up to a point and fastened in this position, and the stems, if tall, should have dry bracken tied round them. Kniphofias, when the leaves are dry, should have these twisted tightly together to protect the hearts of the plants, and if not planted deeply, as they should be, a cone of coal-ashes should be placed around each plant, though soil will answer nearly as well, but it is not quite so effective in a very cold winter. Gunneras and other tender plants will probably have had a covering of bracken put around them some weeks ago, but if this has got very wet replace it with dry material from the bracken stack. Tea Roses, which I prefer to leave unprotected until after the first moderately sharp frost, which is seldom of long duration, should have some soil pulled up well around the stems, using a hoe for the purpose. My reason for leaving these till now is to avert the injury to the buds by spring frosts, a likely result if protection be applied at a too early part of the season. Many bulbous and other plants, such as the Eremurus and Ostrowskia, may have a mound of soil drawn over them, and Iris reticulata covered with hand-lights. In the case of herbaceous Phloxes, Aster alpinus and speciosus, and other plants, the new shoots of which appear to attract slugs, a slight mound of ashes will be of great service. Aloysia citriodora, a favourite plant in many gardens, is often cut down to the ground-line and sometimes killed outright if left unprotected; but a mound of ashes will almost invariably preserve sufficient of the stem and roots to enable them to break strongly and make good bushes in the summer. Old-established plants of Pampas-grass are generally self-protective, but young plants should be helped through the winter by surrounding them at the base with a layer of dry bracken 1 foot thick.

Groundwork may be forwarded whenever the weather is not unsuitable. In frosty weather, all the necessary wheeling of manure and soil should be done, so as to have them in readiness when the work can be started. New beds may be made and the soil trenched where hardy herbaceous perennial or flowering shrubs are to be planted; and in case of both, plenty of farmyard manure should be incorporated with the staple. In dealing with old borders which have been manured with organic manure for years, a good dressing of quicklime will be found of great benefit to the plants, disintegratiug the over-abundant inert manure, and liberating the ammonia and other ingredients.

PUBLICATIONS RECEIVED.—From the Imperial Department of Agriculture for the West Indies: Pamphlet Series, No. 5. *The General Treatment of Insect Pests.* Second edition. By H. Maxwell-Lefroy. No. 9: *Bee-keeping in the West Indies*, by W. K. Morrison; and No. 17: *The General Treatment of Fungoid Pests*, by Albert Howard.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

APPOINTMENTS FOR JANUARY.

TUESDAY, JAN. 13—Roy. Hort. Soc. Coms. meet.

THURSDAY, JAN. 15 { Linnean Soc., Special General Meeting.

THURSDAY, JAN. 22 { Gardeners' Royal Benevolent Inst., Annual Meet. and Elect. of Pensioners.

TUESDAY, JAN. 27—Roy. Hort. Soc. Coms. meet.

SALES FOR THE WEEK.

MONDAY and FRIDAY, JANUARY 5 and 9—
Hardy Border Plants, Perennials, Violets, Carnations, Azaleas, Rhododendrons, Palms, Dutch Bulbs, &c., at 67 and 68, Cheapside, by Protheroe & Morris, at 12.

TUESDAY, JANUARY 6—
Roses, Lily of the Valley, Palms, Dutch Bulbs, &c., by Pollexfen & Co., at Pilgrim Street, Ludgate Hill, at 12.30.

WEDNESDAY, JANUARY 7—
Azaleas, Palms, and Bulbs, at Stevens' Rooms at 12.30.—Azaleas, Rhododendrons, Aspidistras, Roses in large variety, Dutch Bulbs, Perennials and Border Plants, Palms, Herbaceous Plants, Gladiolus, &c., at 67 and 68, Cheapside, by Protheroe & Morris, at 12.—Enormous consignment of Japanese Liliums, received direct, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 5.

FRIDAY, JANUARY 9—
Important sale of Dendrobes and other Orchids, at 67 and 68, Cheapside E.C., by Protheroe & Morris, at 12.30.—Trade sale of Japanese Liliums, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., by Johnson, Dymond & Son, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —36·3°.

ACTUAL TEMPERATURES:—

LONDON.—*December* 31 (6 P.M.): Max. 43°; Min. 36°. *January* 1 (9A.M.)—Dull; slight frost.

PROVINCES.—*December* 31 (6 P.M.): Max. 45, Scilly Isles; Min. 33°, N.E. Scotland.

1903.

In our last issue we took occasion to pass in review the principal events, so far as they concerned horticulturists, of the wonderful year that has just passed. The past has given way to the present, and we are called on to indicate the probabilities (one dares not speak more definitely) of the future. In spite of the uncertainties of the outlook, we have to prepare for the future. No body of men need to exercise forethought and aforehand preparation more than the gardeners. Forethought is the essence of good gardening, and this applies, not only to cultural details, but to affairs generally.

As the erection of a suitable home for the Royal Horticultural Society was uppermost in our thoughts last year, so must it be until this pressing need is adequately supplied. On the continent the Government or the municipal authorities would long ago have recognised the requirements of the case, and supplied them. We do things differently in this country, although there is an increasing tendency to call in State aid where formerly we relied on individual agency. It is not for us to discuss in these columns the superior advantages of one or of the other of these two methods of procedure, but this we do know, that it behoves those who were so eager last spring to secure the erection of a suitable Hall, to take every means in their power to secure the fulfilment of their desires. Shouting and votes by acclamation may afford temporary exhilaration, but unless they are followed up by practical effort, they are a mere waste of time and energy. A good beginning has been made—it is now for the rank-and-file to take up the matter, and by their numbers to force on the completion of the undertaking. It is not fair that the exertions and expenditure needed to carry out a scheme intended for the benefit of all should be confined to a few only of the vast numbers of those interested. For such a purpose everyone should contribute much or little, according to his means. All questions of detail and criticism can be left open for future consideration; the requirements at the present time are funds.

As for the other events of the year to which we may look forward, the most important, so far as we are concerned, is the Ghent Quinquennial. Once in five years in the quaint old Flemish city there is an Exhibition, by the side of which we must stand back, admire, and wonder when our turn is to come. Even more remarkable than the Exhibition is the assemblage of horticulturists and botanists from all quarters of the civilised world. There we may meet men whom we have read of, perhaps even corresponded with, throughout our career, but had no opportunity of meeting; there we may meet, with hearty greeting, our old friends; there, too, we may make new acquaintances; there, too, it must be admitted, we are chastened by the realisation of the losses that a period of five years necessarily entails.

From all we hear, the Royal Society of Agriculture and Botany of Ghent, presided over by the learned and ever genial Count DE KERCHOVE DE DENTERGHEM, is likely to surpass all previous efforts. Moreover, the claims of science will receive a fuller recognition than heretofore. Those of our readers who may not previously have had experience of the "Casino" at Ghent, will realise the more what is needed in the way of an Exhibition Hall and offices in London.

The arrangements made by our own Horticultural and Botanic Societies and the numerous provincial societies, are announced in the Almanac given as a Supplement with the present number. There is enough to show that we shall have our hands full. The Temple Show is so conditioned by circumstances that we fear little can be done to obviate its monotony; but at Holland Park conditions are different, and we trust every effort will be made to introduce novelty and to break away from tiresome conventionalities and formal arrangements so far as can consistently be done. Exhibitors do not need to be reminded that excellence of cultivation and interest are of far greater value than the mere area occupied, and superintendents of flower-shows might be invested with more power than they have, to exclude exhibits that have comparatively little but their bulk to recommend them.

The most interesting and important exhibition, even if it prove the least popular, will be the Exhibition of Vegetables, and the accompanying Conference at Chiswick. This will be doubly valuable, considering the enormous importance of the subject, and for the reason that it will be held in the historic garden of the Society, or in what is left of it—sufficient, at least, to show that we have still an establishment capable of rendering important services to horticulture, and supremely rich in honourable traditions of the past.

LINNEAN SOCIETY.—On the occasion of the general meeting held on December 18, 1902, Prof. SYDNEY H. VINES, F.R.S., President, took the chair. Notice was given from the chair that the next meeting, to be held on Thursday, January 15, 1903, at 8 P.M., will be made a special general meeting, to consider the advisability or otherwise of applying for a Supplemental Charter, in order to provide for the admission of lady Fellows. A ballot will be taken in respect of Mr. ARTHUR GROVE as a Fellow, and Mr. ANDREW SCOTT as an Associate.

ROYAL HORTICULTURAL SOCIETY.—The first meeting of the committees of the Royal Horticultural Society in 1903 will be held, as usual, in the Drill Hall, Buckingham Gate, Westminster, on Tuesday, January 13. An election of new Fellows will take place at 3 o'clock. To prevent misunderstanding, it may be mentioned that the committees of 1902 do not vacate office until the date of the annual meeting, 1903; and in like manner, all Fellows' tickets of 1902 are available until the end of January, 1903.

—— At a general meeting of the Royal Horticultural Society held on Tuesday, December 9, fifty-one new Fellows were elected, making a total of 1140 elected since the beginning of the year 1902.

ARRANGEMENTS FOR THE GHENT EXHIBITION.—According to a recent number of the *Revue de l'Horticulture Belge*, arrangements for the exhibition to be held at Ghent next April by the Ghent Royal Agricultural and Botanical Society are well advanced. The principal annexe will be semi-circular, following the outline of the main façade of the Casino, and the whole length of this building, covering an area of over 4,000 square yards, with an interior elevation of from about 21 to 37 feet from the ground-level to the beginning of the slope of the roof. It will be lighted by glazing large portions of the upright and sloping parts of the building. No expense will be spared to ensure the comfort of exhibitors, and merely decorative details, on exteriors especially, will be sacrificed for this object. A second annexe, covering about 550 square yards, will be erected as a supplement to the large hall towards the Coupure. This will be reserved for the Orchids, and will be appropriately decorated inside, access being only through the large hall. In fact, the whole of these temporary buildings, that are already well begun, will cover a surface of nearly an acre. The great annexe in 1898 covered 3,300 square yards only, and on that occasion was much larger than the one erected in 1893. These figures enable us to understand the scale on which the forthcoming exhibition will be arranged.

SEEDS AT LA MORTOLA.—The seeds collected in the garden of Sir THOMAS HANBURY, and available for exchange, are detailed in a list now before us. No seeds are sold, but those desirous of making exchanges should address Mr. ALWIN BERGER, the Curator, La Mortola, Ventimiglia, Italy. Sir THOMAS HANBURY notes among his *desiderata* succulents, trees and shrubs of extra tropical countries, plants of the Mediterranean region, Proteaceæ, &c.

GARDEN AND FIELD MANURES IN NATAL.—There has just been issued by the Agricultural Department at Petermaritzburg a pamphlet entitled "Manures on the Natal Market," the author being Mr. A. PARLY. The object of the *brochure* is to classify the fertilisers for sale in Natal, and to place them on a comparative basis, so that their relative values may be determined; and the list places before intending purchasers a uniform statement of the composition and comparative value of all manures now on the Natal market, and the prices asked for them. It might be worth while to extend the value of the pamphlet by adding the amount of chemical constituents removed from the soil by the various crops harvested. Market-gardeners and farmers in the South African colony are much indebted to the Department and Mr. PARLY for the work they have accomplished.

PARIS.—The committee meetings of the Société Nationale d'Horticulture for the new year are thus arranged:—Scientific Committee, on the second Thursday of each month at 1 P.M.; Vegetable, Fruit, Floral, Arboricultural, and Orchid Committees, all on the second and fourth Thursdays of each month at 1 P.M.; the Landscape Garden (*Art des Jardins*) Committee meets on the second Thursday of each month at 1 P.M.; the Committee for the "Industries Horticoles" meets on the fourth Thursday of each month at 1 P.M. The meetings of the Chrysanthemum section are on the fourth Thursday from January to August, and on the second and fourth Thursdays from September to December inclusive, at 1 P.M. The Rose section is timed for the second Thursday in each month, and also for the second and fourth Thursdays during May, June, and July, at 1 P.M. The Fine Art section is arranged for the second Thursday in each month at 5 P.M. The Pomological section holds its sittings on the second and fourth Thursdays in each month at 10 A.M. The Committee for Manures and Insecticides is summoned on the fourth Thursday in each month at 2 P.M.

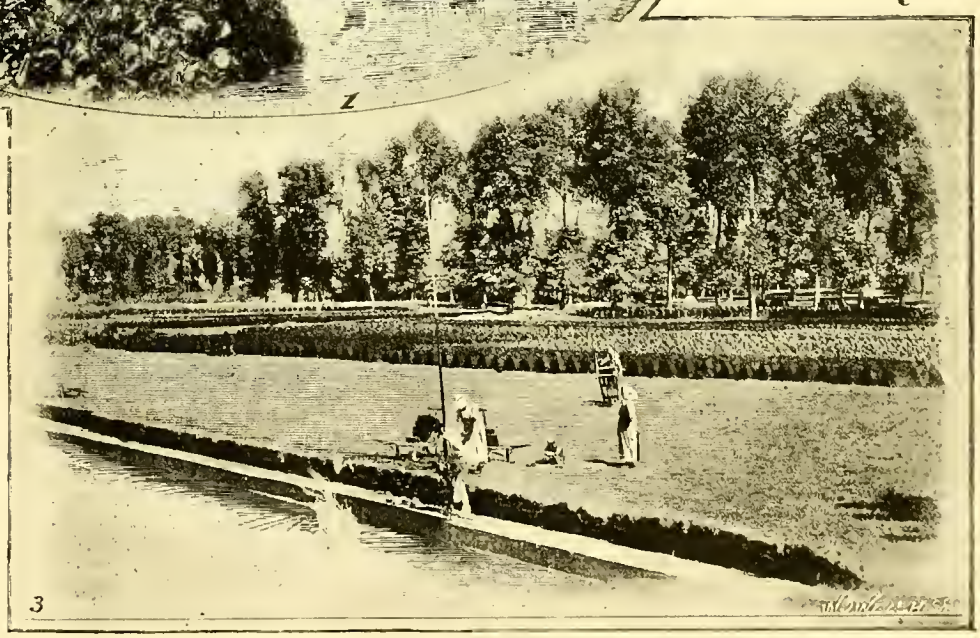

FIG. 4.—AMIENS: (1) THE "HORTILLONAGES." (2) BOATS CARRYING PRODUCE TO MARKET. (3) EXTRACTION OF PEAT FROM THE MARSH. (SEE P. 1.)

"OOTHECA WOLLEYANA."—An illustrated catalogue of the collection of birds' eggs formed by the late JOHN WOLLEY, junr., M.A., F.L.S., edited from the original notes by ALFRED NEWTON. Part II., Picariæ—Passeres. (London: R. H. PORTER, 7, Prince's Street, Cavendish Square.) A book, the completion of which has been long delayed, seeing that Part I. was published in 1864, while the issue of this second volume has, for various reasons, been postponed until this present year. Mr. WOLLEY was an enthusiastic collector and student of birds' eggs, and by his travels in Lapland and other out-of-the-way countries was able to add to his cabinets and lists many specimens of great rarity, and some hitherto regarded as extinct. From these stores, and from the letters and papers relating to them and committed to his care, Prof. NEWTON has published the book now under discussion. The text is well arranged for reference, and the coloured plates are excellent. A very interesting memoir of the late Mr. WOLLEY is appropriately included in the volumes.

THE EDUCATION BILL.—The St. Bride's Press, Ltd., who are the proprietors of the *County Council Times*, the official organ of the County Councils, and of various educational associations, will publish on the first day of the New Year a weekly paper to be called *Education: Primary, Secondary, and Technical*, which will deal mainly with the work of the authorities under the Education Bill.

NOVA SCOTIA APPLES.—According to a report furnished us by the Secretary for Agriculture, the fruit-crop in Nova Scotia has this season been very much below the mark, both in quantity and quality. Exports will be diminished by at least a third.

MANURES FOR VINES.—As a result of numerous experiments recorded in the *Comptes Rendus*, Messrs. GUILLON and GOUIRAUD show (1) that on a calcareous soil the effects of the application of chemical manures do not show themselves till after a considerable interval; (2) that potash salts are the most effectual, then phosphatic compounds, and lastly nitrogenous manures; (3) farmyard manure is highly valuable; (4) chemical analysis of the soil does not give sufficient indication of the kind of manure that should be employed. Experiments followed out during several years are alone capable of guiding the cultivator in his selection.

"THE ENGLISHWOMAN'S YEAR-BOOK AND DIRECTORY."—This is the twenty-third annual issue of this useful publication, and is edited by EMILY JANES. The contents include a Calendar, and are divided into sections dealing with: 1, Education; 2, Employments and Professions; 3, Industrial; 4, Medicine; 5, Science; 6, Literature; 7, Art; 8, Music; 9, Sports, &c.; 10, Public Work; 11, Philanthropy; 12, Temperance; 13, Homes and Charitable Institutions; 14, Religious Work. There are, further, a brief summary of the events of the year, and a Directory of names and addresses of prominent women workers; an index is also added. Agriculture and gardening, considered as employments for women, receive due attention, and the business of a florist is also described, with the addition of a few necessary truths concerning the hard work connected with it. The whole volume is valuable to the working woman. The publishers are ADAM & CHARLES BLACK, London.

ACCIDENT TO A GARDENER.—As Mr. THOMAS BANNER, foreman in the employ of Messrs. TOM B. DOBBS & Co., nurserymen, &c., Wolverhampton, was stepping backward to look at the position of some shrubs he was placing in the front of the Grand Theatre in that town, he fell through the glass roof of a verandah a distance of 14 feet. He alighted on his feet, but one of his hands was badly cut, and he received a severe shock. Mr. BANNER was for a period of twelve years foreman in the gardens of Wrottesley Hall.

"SILVA OF NORTH AMERICA."—The two supplemental volumes (xiii. and xiv.) have just been published, containing additional matter, indexes, &c. We shall take an early opportunity of noting their contents; but in the meantime we may congratulate Prof. SARGENT on the completion of his laborious undertaking, and we may also rejoice that horticultural literature is enriched by so magnificent a production. HOUGHTON, MIFFLIN & Co., of Boston, U.S.A., are the publishers, but the work can be had of WILLIAMS & NORGATE.

A WORTHY EXAMPLE.—When sending us a few particulars for the Almanac, published with this present issue, the Secretary of the Chesterfield District Chrysanthemum Society incidentally remarked that this Society has contributed during 1902 £41 10s. to the gardening charities, of which £31 10s. has gone to the Gardeners' Royal Benevolent Institution and £10 to the Royal Gardeners' Orphan Fund. The total income of the contributing Society was only £200. Surely this is a worthy example!

"VEGETABLES AND FLOWERS FROM SEED IN TROPICAL, SEMI-TROPICAL, AND TEMPERATE CLIMATES" (SUTTON & SONS, Reading).—We have here, in handy form, instructions for managing in distant climes many of those homely vegetables and flowers which are there so doubly welcome. The information is arranged alphabetically, and interspersed with many illustrations, and the name of the firm who issue the book is full guarantee for its reliability and value. The volume is clearly printed on good paper, and not overloaded with distracting advertisements.

"TRAITÉ PRATIQUE DE CULTURES TROPICALES," par J. DYBOWSKI, Préface de M. E. TISSERAND. Tome Premier. (Paris: AUGUSTIN CHALLAMEL, Rue Jacob, 17.) A contribution to tropical agriculture and horticulture, justified by the explanation that the increase in French colonial territories, and in their importance, necessitates due attention to their maintenance and welfare. Cultivation of the soil is an important side of foreign as of home industry, and any book that can be of service in this matter should be sure of a welcome. M. TISSERAND divides his book into sections, devoted respectively to Climate, Soil, Water, Manures, Propagation, and Plants Cultivated. The latter are treated of separately, and, for easy reference, are arranged alphabetically. The volume includes an index and many illustrations.

"THE TRANSVAAL AGRICULTURAL JOURNAL."—We have received a copy of the first part of a journal which is to be issued quarterly, and devoted to the interests of agriculture. It is devised to assist the farmers with expert advice, to place at the service of agriculturists the advice and services of veterinarians, entomologists, chemists, botanists, and practical men. It is published by the Agricultural Department, and bids fair to be a most valuable publication. Gardening, forestry, and fruit-tree culture are included in the programme.

"THE 'HOUSE' ANNUAL" (GALE & POLDEN, Ltd., 2, Amen Corner, Paternoster Row, E.C.).—This publication proves on examination to be compiled by Mr. W. A. MORGAN, of the Stock Exchange, in aid of the *Referee* Children's Dinner Fund." Many literary and artistic authorities have presented contributions, and members of the "House" and the public generally are requested to give yet further assistance. Previous books of a similar character have resulted in the raising of £1000 for the Fund, and it is hoped that many copies of the present volume may be sold at 5s. each. The contents being gratuitously contributed, call for no criticism; they are miscellaneous, including fiction, London notes, poetry, and other diverse subjects. The article most of interest to our readers is that on Chrysanthemums, by Mr. PERCY WATERER; it is illustrated, as are other of the papers in this annual. The *Referee* Children's Free Breakfast and Dinner Fund is doing a good work, and we wish it every success.

BRITISH INDUSTRIES.—In the *British Review* for December, we find an illustrated account of the origin and progress of the nurseries at and near Maidstone, belonging to Messrs. BUNYARD.

OAKWOOD, WISLEY.—The sale by auction of the late Mr. G. F. WILSON'S unique garden near Byfleet and Weybridge is to take place at the Mart, Tokenhouse Yard, on Tuesday, January 20, at 2 P.M. The estate is freehold, and comprises in all about 60 acres. Messrs. A. H. TURNER & Co., of 69, South Audley Street, Grosvenor Square, and of Weybridge, are the auctioneers.

"THE NEW FORESTRY."—A second edition of *The New Forestry*, containing additional illustrations and matter, by J. SIMPSON, will be published by Messrs. PAWSON & BRAILSFORD, Sheffield, early in the present year. The first edition was published three years ago.

A LARGE INDIAN MELON.—A very fine fruit of the Indian Melon (Cucumis Melo var. momordica) was grown at Government House, Singapore, in sandy soil. It was dark green, mottled with lighter colour, and weighed 16½ lb., with a length of 2 feet 3 inches and a circumference at the broadest end of 1 foot 10 inches. It had not much flavour, but is said to be very wholesome, and is an important article of food in India. *H. N. R.*

"THE YEAR-BOOK OF NEW SOUTH WALES."—This is compiled by the editor of the *Year-Book of Australia*, and published by authority of the Government of New South Wales, for circulation by the Agent-General in London, Westminster Chambers, 9, Victoria Street, S.W. It is a useful guide to the governmental, ministerial, legal, medical, military, trade and commercial, railway, and other interests of the Colony, the increasing importance of which renders all such authorised statistics as those now before us valuable to those in the Mother Country as well as to those resident in the Australian Commonwealth.

FAGUS BETULOIDES.

HERE in Cornwall, writes Mr. A. C. Bartlett, this tree is often called F. antarctica. There is a close resemblance between the two species, and they are both natives of the same country—that little-known extremity of South America, Tierra del Fuego; but the chief difference is that while F. betuloides is evergreen, F. antarctica is deciduous. Although noticed by Sir Joseph Banks some sixty years earlier, these trees were not introduced to this country until 1830. Unfortunately the evergreen Beech has not hitherto proved hardy, except in the southern counties; but where it does thrive, it is such a distinct and ornamental tree as to be well worth extra attention.

Fagus betuloides certainly does best when planted on a well-drained slope facing south or west. In its native country its size and appearance depend chiefly on the altitude in which it is growing. In the sheltered and fertile valleys it becomes a large tree—probably the largest southern tree in the world; while on the exposed heights it is so dwarf and compact that it may be walked upon.

The accompanying illustration (fig. 5) is that of a fine specimen growing at Pencarrow, Bodmin. The seed from which it was raised was sent from New Zealand in the early forties to Sir William Molesworth by his younger brother, Mr. Francis Molesworth, who was one of the first settlers in that country.

[To Mr. Bartlett's note we append the following extract from Hooker's *Flora Antarctica*:—

"The dense, dark forests which cover the shores of the Straits of Magellan and the mountain slopes of Tierra del Fuego, are principally composed of two Beech trees, the evergreen Fagus betuloides . . . and the deciduous-leaved F. antarctica. . . . F. betuloides forms the prevailing feature of the scenery of Tierra del Fuego, especially in winter-time, from having persistent leaves, and from its upper limit being sharply defined, and contrasting with the dazzling snow that covers the matted but naked branches of F. antarctica, which immediately succeeds it, and which even at Cape Horn ascends much higher than Fagus betuloides, and nearly to the summit of the mountains, which are 1000 feet below the line of perpetual snow, while at the sea-level it forms a larger tree." *Hooker's "Flora Antarctica,"* ii., 345; *Sargent's "Silva,"* ix. (1896), *p.* 23, *adnot.*]

COVENT GARDEN MARKET NOTES.

CUCUMBERS fetched good prices in the Christmas week, and these are likely to be sustained for a short period of time. Except for lack of sunshine, the weather has been in favour of the market-grower, and but little fire-heat has been required. The best Cucumbers were selling at 20s. per dozen, a price that would afford comfort to the grower, but more produce was sold at 12s. to 18s. per dozen.

APPLES.

Some persons may think this a quiet market, but even so, prices for good samples were well maintained. Much second and third-rate fruit comes into market, moreover much of the best

samples are not clear in the skin. Dessert fruits fetch from 8s. to 14s. per bushel. Culinary Apples were selling at from 4s. to 9s. per bushel, the latter price being for Wellingtons. There are fine Canadians in barrels on the market, which should be followed by well graded, good varieties from our own growers. *S. C.*

HOME CORRESPONDENCE.

THE SEASON IN THE COUNTY OF DOWN.—The season up to the present has been abnormally mild. Berberis Darwini, Escallonia pterocladon, E. organensis, Nandina domestica, Eucalyptus coccifera, and several other shrubs that do not usually flower till the spring months, are showing a fine mass of bloom. Lapageria rosea, against a west wall, is carrying a fine crop of flowers; while large clumps of Rhododendron Nobleanum and its pink variety are especially showy at the present time. The birds, too, have scarcely interfered with the berry-bearing shrubs, such as Cotoneaster frigida, C. Hookeriana, white and red Pernettyas, Cratægus Lelandi, showing that their supply of food from other sources has not yet been cut off by frost. *T. Ryan, The Gardens, Castlewellan, co. Down, December 20.*

THE FLOWERING OF CALANTHE VEITCHI.—I was interested in the note which appeared in these columns on December 20, descriptive of the flowering of Calanthe Veitchi, by Mr. E. Miles, Croydon, from the apex of the pseudo-bulbs annually. I may mention in this connection that among two hundred seedling Calanthes which flowered at Cliveden when I was there in 1897, quite half had from three to five spikes, and a few of the best pseudo-bulbs carried six spikes. The strongest flower racemes bore more than forty flowers. The racemes grew from alternate nodes, the strongest growing, as might be supposed, from the bottom of the pseudo-bulbs. I have never seen any Calanthes which flowered so well as those. Mr. Bacon was head gardener at Cliveden in '97. *F. W. Frensham.*

NEW ROSES—A CORRECTION.—Allow me to correct a very absurd mistake which was made in my paper on New Roses in the *Gardeners' Chronicle* for December 20. I am made to say:—"He had not succumbed to the much-to-be-condemned practice of judging his own Roses." It should have been, "over-dressing their Roses." This mistake was that of my amanuensis, not that of the compositor. *Wild Rose.*

A CAUSE OF PINK HYDRANGEA HORTENSIA COMING OF A BLUE TINT.—There is no doubt, as Mr. T. S. Goodrich states at p. 444, vol. xxxii., that certain soils have the effect of turning the pink Hydrangea blue. There may be other agencies, but soil is certainly one of them. When a boy in the garden, and my father was gardener to the Marquis of Camden, Wildernesse Park, Kent, I remember going annually to a kind of sand-pit to fetch soil for this purpose. No doubt the pit is still there; it was on the right-hand side of the walk leading from the gardens to the then gardener's house, and about 80 feet from the path. What the substances were in this sand which caused Hydrangeas to turn blue I do not know. This fact is a little mysterious, and although I was in first-class gardens and in business for over fifty years, I never met with any soil or sand, except that mentioned above, that had the effect of turning the flowers of the pink Hydrangea to a blue tint. *E. Bennett, Station Villa, Farnborough, Hants.*

SWEET PEAS.—*Apropos* of the discussion regarding the fertilisation of Sweet Peas, I may say that this subject interested Darwin forty-four years ago, *vide Gardeners' Chronicle*, 1857-58. The view propounded by S. Knight, *Gardeners' Chronicle*, p. 464, being virtually identical with that of F. Darwin, that "The Sweet Pea, not being indigenous, is not perfectly adapted for fertilisation by British insects. *M. A., Dec.* 22, 1902. [See Darwin, *Variation of Animals and Plants*, vol. ii. (1868), pp. 93, 94. ED.]

GARRYA ELLIPTICA.—My early impressions of this shrub would cause me to plant it only in well sheltered positions—and in one of our well-known hooks reference is made to it in the south of England, which by inference would imply that it needs shelter elsewhere; but, in an open part of a Glasgow nursery it may be seen growing freely, and is described by "as hardy as anything." This rambling shrub certainly looks very charming against a walt, but there appears to be no other reason why that position should be selected. *G. M. W.*

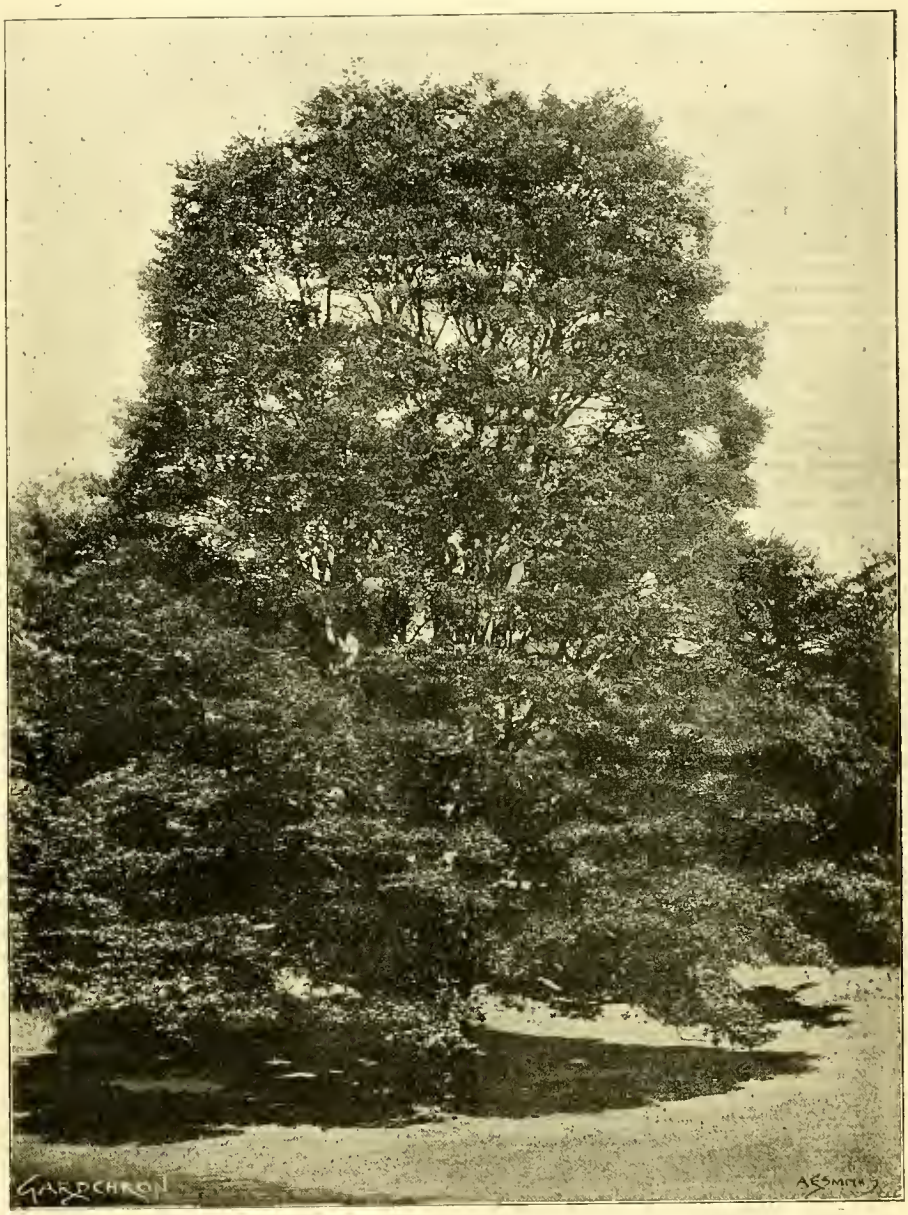

FIG. 5.—EVERGREEN BEECH (FAGUS BETULOIDES) AT PENCARROW. (SEE P. 10.)

DENDROMETER.—Can any of your correspondents, interested in this instrument, tell us of what practical use it is? I have measured a good many thousands of standing trees, as most timber is sold standing, and seen many measured, but I never saw a dendrometer in use for such purposes, nor knew a practical man who encumbered himself with such an instrument. It cannot be used in a wood, where most measuring is done, and in the open it is too troublesome to put in operation. Schlich, vol. iii., says that instruments for measuring the height of trees are all based upon one of two principles, geometrical or trigonometrical; and I suppose, where mathematical exactness is an object, these are the methods, but simpler means are available. I have long used light 5 or 10 ft. rods, that fit together easily by means of loose sockets, like a long fishing-rod, and I have given the pattern to many gentlemen, one of whom improved on mine by using light bamboo canes with brass sockets—quite an elegant set. Others may use these rods, but I never see any but my own. A boy can carry the rods, run them up a tree, and let them down again in a few seconds, and would measure the height of many trees while the dendrometer-man was getting his instrument into operation. One trusts to the eye a good deal in estimating height, but in case of dispute arising, it is best to have the tape and rods; and if someone would invent a handy instrument for finding the quarter-girth 30 or 40 ft. up, and of the big limbs out of reach, it would be worth something to the novice. There is a dendrometer-way of doing that, I suppose, but it is as worthless as the other, and trunks and all large limbs have to be estimated by the eye. It is surprising, too, how

near one will get to the contents in that way. I have had over 20,000 feet of Oak fall to the fellers measure within about 150 feet of the standing and selling estimate, in which all the girths were taken by the eye in averages all over the wood, and the difference was on the right side. *J. Simpson.* [The dendrometer is a very useful implement for the amateur. ED.]

—— Height-measuring instruments were in existence centuries before Mr. Duncombe's day, and the one I referred to as being figured about a hundred years ago was, as I indicated, a very old device then. If "D." would furnish a short description of the construction of Mr. Duncombe's instrument, or say where this is to be found, it would clear the matter up. *A. D. Richardson, Edinburgh.*

GENERIC DIVISIONS OF CACTI.—Your correspondent M. de Laet, in the *Gardeners' Chronicle* of December 27, 1902, prefers to retain the present generic divisions, with all their admitted errors, because he holds that there were still more errors in the older nomenclature. If we admit this, we are still faced with the fact that we have a bad system (or lack of system) left. What we require is, not something a little less unscientific than our predecessors put up with, but a system of generic division founded upon good generic differences. German botanists have recently given much research to this subject, though I should not like to express any opinion upon whether the system of Professor Schumann rectifies the errors of nomenclature. It is a very large field to consider. M. de Laet asserts that Phyllocacti have flat (2-edged) stems even in the seedling state; doubtless in many cases they have, but not in all, as my own experiments prove. It is this very lack of constancy that invalidates the present generic divisions founded, as we must believe, in ignorance of this. I have in fact seen both forms of stem on the same plant, and in most cases the seedlings of 2-edged species (Phyllocacti) will, as they approach maturity, outgrow their 3 to 6 edged stems, and resemble their parent. M. de Laet would have us believe that such plants have a strain of many-edged (Cereus) blood in them; probably this would produce a similar result in a seedling state. But surely the very fact which M. de Laet admits, viz., that the 2-edged and the many-edged species will interbreed, is not a strong argument for the retention of Phyllocactus and Cereus as separate genera. If they are admittedly reconciled, why continue to call them by different names? *A. Worsley, Isleworth.*

CUCUMBER CULTURE.—Mr. Lowrie, who wrote on Cucumbers, states ante, p. 229, vol. xxxii., that he has seen Cucumbers yielding enormous crops on the banks of the river Cauvery, which were only afforded water occasionally. Perhaps so, but he does not say that the roots were abundantly supplied with water, and had he dug a hole a foot or so deep he would have observed the hole was soon partly filled with water. The leaves, he states, were left untouched by moisture. This I can readily believe, as the leaves lie on the ground, and moisture would condense on the under surface on any plant near a river. I would naturally expect the upper surface to be bedewed likewise. I grew Cucumbers for eight years in a lean-to sunk pit without the syringe being in use at all. Along the centre of the pit was a narrow brick cemented tank through which the hot-water pipes passed to provide bottom-heat. The plants were put in during November, and were kept growing till November came again; and when pulled up, as many as a dozen Cucumbers of one sort or another would be found on a plant. When the plants began to bear fruit, water was put into the tank sufficient to touch or cover the pipes, and it was so kept for the season. The harder the firing, the more steam arose, and I invariably found dew deposited in the morning on the under surface of the leaves, consequently red-spider was a stranger. A thin coat of lime covered the glass during the sunniest part of the year, and very little air was afforded, but more at night than by day. I never had to do with a structure that gave so little trouble and such grand results as that one. It was built, I believe, at the suggestion of the late Lord Eversley. Mr. Lowrie speaks of the peculiar and unscientific modes of cultivation adopted by market gardeners. Now, I always thought that the methods of the born-and-bred market gardeners were as perfect as they could be, and that it was those who embarked in market gardening late in life, such as gentlemen's gardeners and aspiring amateurs, who failed and came to grief. I do not think that Mr. Lowrie can teach the trained market gardener how to grow Cucumbers, or any other market commodity. From what I have seen of the practice of market Cucumber growers north and south, they work on the express system, and get all they can out of their plants in the shortest possible time, Cucumbers not being much in demand after the end of July. It was once my lot to sell the produce of a garden. I took my first lot of Peaches to Covent Garden and got 36s. per dozen for them. I planted Cucumber plants to come in bearing at Christmas, took some a week before that festive season to the same fruiter to whom I took the Peaches; the head of the firm said, "My good man, who do you think wants a lot of Cucumbers this time of the year (it was bitterly cold)? had you brought some brandy and hot water, it would have been more sensible of you." A market grower would not have done that, perhaps. I left my Cucumbers, but got nothing for them, and returned home a wiser man, and cut off every Cucumber, small and big, and left the plants to grow on. The Cucumber-houses I have to deal with now are span-roofed, running north and south, and are entered by three steps at the lower end; they are naturally dry. We shade the plants, give little ventilation, never allow the plants to approach anything like dryness at the root, and in summer-time they are syringed three or four times daily, and always about 10 P.M., and in winter never less than twice, and we have from two to six fruits showing at a joint. Some planted last spring are still carrying fruit, but not being particularly wanted, the plants have not been top-dressed for some weeks. I fear Mr. Lowrie, with his reduced supply of moisture at the top and root, with more ventilation, and reduced temperature, would soon be landed in the bankruptcy court if he depended for his living on growing Cucumbers. One word more: Mr. Lowrie states that the growers use too much soil. Now, I have been amazed at the heavy crops produced in so little soil. A grower, not far from where I write, grows his in less than 8 ins. after two or three top-dressings; but the place is swamped with manure-water. *W. P. R.*

CROSS TRELLISES FOR PEACH-TREES.—I see that your correspondent "H. J. C., Grimston," holds the belief that good Peaches and Nectarines can only be grown near the roof of a forcing-house; he also says that he knows of two places south of the Trent where they are grown on cross trellises. I am not aware if one of the places is Blenheim Palace. If not, I can inform him that there is a large lean-to house in that garden which is planted with Peach and Nectarine-trees on cross trellises; and the back walls are planted with Peach-trees. A narrow stage runs along the front of this house suitable for standing Strawberry-plants in pots, &c. For ten years I had the opportunity of seeing the crops of fruit grown in this house, and I have always considered it to be a very useful Peach-house, the crops being good, and the fruits of a fair size, and a little in advance in point of time of those on outside walls. *J. H. Baker, Eynsham, Oxon.*

THE WINEBERRY.—Practically if Raspberries succeed, the Wineberry will also do so. The difference in the training of the canes is, that while Raspberry-canes are generally shortened at about 5 feet from the ground, the Wineberry grows 10 or 12 feet in length of shoots, which should not be shortened, but trained downwards. Good results are thus obtained, and an abundance of fruit fit for dessert gathered late in the autumn. All old canes should be removed at this season, but tying-in should be postponed for a few weeks. *S. C.*

IRISH HARDY FRUIT.—The interesting note by your correspondent, A. Dean, raises an additional question to the one with which he terminates his note, and that is, why should not England, as well as Ireland and Canada, become great fruit-growing countries? According to the Board of Trade Returns, published in the *Gardeners' Chronicle* of the same date, p. 440, for the month of November, we imported 606,156 cwt. of Apples, and 24,177 cwt. of Pears. It is possible to grow that quantity of hardy fruit in England, and afford employment to many gardeners, besides keeping money in the country. But why cannot we produce a sufficient quantity of fruit to meet the demand, and at a lower price? One reason is, that the working population here in England have not access to the land on such favourable terms as the people in our colonies. To verify this statement, I must refer to the *Times* of Saturday, December 13, 1902, under the heading, "Canadian Emigration," which reads, "Mr. Preston, Commissioner of Emigration for Canada, has authority for the statement that an English syndicate is being formed with a view of endeavouring to secure from the province of Ontario a similar concession to that which was granted recently by the Provincial Government to an American syndicate, whereby about 2,000,000 acres of land was sold to these parties at 4s. an acre." I have lived in this district for upwards of three years, and have ascertained that the land hereabouts belong to one or two persons, who let a large portion go out of cultivation, cultivate a portion, and let a small portion at a rental of 15s. to 30s. an acre, and this for inferior land 10 miles from the nearest market. If this is the state of things throughout England and Ireland, it is obvious that the working population cannot possibly attempt to grow hardy fruit. *C. P. Cretchley, The Gardens, The Honeys, near Twyford, Berkshire.* [We have always insisted that it is the peculiar conditions of land tenure in these islands which prevent us cultivating fruit in sufficient quantity for home needs. Added to these are the system of co-operation among foreign growers, their better system of grading and packing, and the handicapping of fruit and vegetable-culture here by excessive railway rates, which make it possible to bring French, Belgian, and Dutch produce in large quantities to our southern ports, send it by railway to London, and undersell the grower in the home counties. ED.]

HYBRID RUBUSES. — It was distinctly a feather in the cap of that veteran and most talented of hybridists, Mr. John Seden, that two of his products, so widely dissimilar as Damson and Raspberry, should have gained for Messrs. Veitch & Sons the honour of two Awards of Merit at one sitting of the Fruit Committee at the Drill Hall, honours which it is just possible may assume a higher form another year. When it is remembered that up to a certain period Mr. Seden worked chiefly amongst Orchids and other flowering plants, it has to be said that his labours amongst fruits do merit the warmest approbation. The new Raspberry, the third of fruits of this class, which has come as a cross product from Langley, and has been so descriptively named November Abundance, is the product of crossing the American Raspberry Catavissa with our fine variety Superlative, with the result that the progeny is, as seen from the sample branches sent to the Drill Hall on the 4th ult., not only wonderfully prolific, but is a late autumn fruiter. In that respect, it bids fair to put October Red and Belle de Fontenay out of court altogether. The fruits are large, roundish, not unlike those of Baumforth's Seedling, of deep rich colour, very juicy, and sweet. A few years since, Messrs. Veitch & Sons received an award of a First-class Certificate for Raspberry Queen of England, with yellow fruits, very fine indeed, and a superb summer fruiter. This was the product of crossing Raspberry Superlative with the Blackberry Rubus laciniatus, a very remarkable result from red and black-fruited parents, and no doubt far from being anticipated. Then there was an award made a year or two since to that very fine fruiting sour Blackberry, "The Mahdi," the fruits of which are of a deep crimson colour. The parents were the common Blackberry and Belle de Fontenay Raspberry. The variety fruits between the Raspberry and the Blackberry, and being so fine and richly flavoured, forms a valuable adjunct to the dessert table. These are real hybrid or cross-fertilised additions to our fruit lists, and they bear striking comparison to what is assumed has been done in the same direction elsewhere. The fine fruiting Rubus laciniatus seems to have its origin lost in

obscurity. It is yet by far the best of the non-wild Blackberries we grow here in gardens. The Loganberry, so-called, has been assumed to be the product of a cross in America, but that famous botanist, Mr. Bailey, holds that it is a natural species; as is also that would-be impostor, the Strawberry-Raspberry, so-called, but which is a species—Rubus palmatus. As to the very pretty Rubus phœnicolasius, the best novelty of its kind from Japan, no one claims for that a hybrid origin. It is a charming climbing or even bush plant, but hardly one of the species named can compare in edible value with the products of that skilful and honoured hybridist, Mr. J. Seden. *A. D.*

PARIS.

A HORTICULTURAL HALL WANTED FOR PARIS.

THE Société Nationale d'Horticulture de France held its autumn exhibition in the pavilions at Cours la Reine, that were erected for the Universal Exhibition of 1900. This was the first time this course was pursued. Before 1900 the Chrysanthemum shows had been held in the Tuileries Gardens. In 1900 all the Congresses and Horticultural Exhibitions took place in the erections built for the purpose on the banks of the Seine, but there were many objections to this, and in 1901 the autumn show was arranged in the Grand Palais du Champs Elysées, a lofty building rather dark and unheated, so that the plants suffered from the cold. This year the spring exhibition was at Cours la Reine and proved very successful, so that the same place was chosen for the autumn show. Unfortunately the houses are not heated, and as the exhibition was opened later than usual (December 12), exhibitors were much inconvenienced, as the show was open for a week, and after the 17th the weather became very cold, the plants for the last three days being in a temperature of 4° C. (39° F.). M. Lebaudys' fine Gloire de Lorraine Begonias, and many Orchids, were killed, others being saved by being covered with paper every night. It is again asked where the autumn meetings can best be held. The last exhibition was well managed: M. Jules Vacherot, President of the organising committee was universally congratulated upon his success, many exhibitors desiring that the stands and tents might be left permanently in place. But if another autumn show is held there, only Chrysanthemums will be staged, owing to the risk of exposing other plants.

The difficulty might be met by installing a heating apparatus, but this would be an expense, and the city of Paris would not be disposed to assist, as the buildings are but little used and may not always be left standing. The houses cost a great deal to keep up, and much glass is broken by children playing near, so that the municipal council may decide to take down buildings that are used for barely a fortnight each year by the horticulturists.

In fact it is desirable to find in Paris, as in London, a large and suitable building for flower-shows. Probably the authorities will soon provide one, especially as the agriculturists also desire a hall for congresses that for some years past they have not known where to hold. The Galerie des Machines, left from the 1889 exhibition, has been twice used for agricultural congresses, but they have since been taken down, parliament having passed a law by which the city was empowered to control the Champ de Mars. The land on both sides is let to private persons, who have erected mansions thereon, and the remaining ground is turned into a park, similar to the Parc Monceau.

Therefore it becomes evident that on the borders of Paris, near the Bois de Boulogne, it is desirable to build a large hall suitable for agricultural congresses and horticultural and other exhibitions. *G. T. Grignan.*

[It must be remembered that the Society has a fine suite of rooms for its offices in the Rue de Grenelle. ED.]

LAW NOTES.

GARDENER TO PAY FOR DAMAGE.

A REMARKABLE case was before Judge Mausel Jones at Rotherham County Court recently, in which the plaintiff sued a gardener for £14 damages, alleged to have been sustained by defendant negligently or wrongfully removing the terminal buds from 280 Chrysanthemum-plants. The gardener, it was stated, had been in plaintiff's employ as head gardener for three years, but left in September last. Before leaving he is alleged to have told an under gardener that he should "get even with the old man," and should destroy all his own stuff on the premises. When the new head gardener came he found the terminal buds had been removed from the Chrysanthemums. In reply to a lawyer's letter, defendant wrote "If anyone wants compensation it ought to be me, for half the plants on his place are what I have begged." Defendant denied having damaged the plants, and suggested that plaintiff had done it himself by "putting his own finger in the pie." The judge, however, made an order for the full amount claimed.

FIG. 6.—PROLIFIED ODONTOGLOSSUM.

A PROLIFIED ORCHID.

A VERY unusual malformation, so far as Orchids are concerned, has been set to us. It is a case of median prolification in Odontoglossum crispum, that is to say, one flower grows out of the centre of another flower. The lower blossom has no ovary, but it has three sepals and three petals in regular symmetrical alternation and regular form. There is no column, but in its place a pedicel an inch or more long, bearing at its extremity a distorted flower with two sepals and two petals placed crosswise, the second petal being a lip. In the centre is a column with indications of two anthers. This second flower, therefore, shows that very common tendency in Orchids to arrange the parts of the flower in twos (see fig. 6).

ENQUIRY.

ENGADINE CARNATION.—Will some correspondent kindly inform "C. J. H." what plant is meant by Engadine Carnation, and how best to cultivate it?

NURSERY NOTES.

MR. ICETON'S, PUTNEY.

MR. W. ICETON, of the Granard Nurseries, Putney Park Lane, which were established in 1866, was among the first to force quantities of Lilies of the Valley for sale in Covent Garden Market, and he continues this work in larger proportions than formerly. Others may force even greater quantities, but it is generally conceded that there are no better or stronger flowers than those sent to the market from Putney. Huge numbers, indeed millions, of selected German crowns arrive to Mr. Iceton's order during winter in several consignments, and they are packed away in a cool chamber of the Cold Storage Co. for use when required. The flowers sold during Christmas have been produced by crowns which were imported last February, and similar crowns will afford blooms during the month of January. Towards the end of this month, however, the first batches of new crowns will be boxed up and put into warmth in a position from which light may be excluded until the flower-spikes have advanced out of the sheath. Then the sale of retarded crowns and flowers from such crowns may be said to have finished, for directly the new crowns are on the market, everyone prefers them to retarded ones. If there remain a few crowns in the cool chamber, however, they may still serve a useful purpose, as they will produce a fine lot of valuable foliage that can be used in bunching-up the new flowers, for all growers have found that the crowns forced earliest, say, in January and February, though they may yield good blooms, are not capable of developing much foliage.

When visiting the nursery a few days ago, we saw some of the later batches of crowns from the cool chamber, some of which, impatient of the retarding to which they had been subjected, had commenced to grow even in the cool chamber. Little harm is done if the crowns elongate there to some extent so long as the flower-spike is not in the least visible when they are removed; but if this be the case, then they are useless. Mr. Iceton's crowns are put thickly into wooden boxes, almost square, which hold 100 each, and unless these are sent to market as they are grown, the flowers are cut and put up into neat bunches containing twelve spikes each with additional foliage. For four or five days previous to Christmas we were informed that there were sent to market about 100 such boxes of growing plants, and 100 dozen bunches of cut blooms each day.

To such an extent has the retarding system upset the limitations the seasons formerly imposed, that Mr. Iceton sends "Valley Lilies" to market on every alternate day throughout the year. Roman Hyacinths are marketed in bunches of six spikes each, but it is very early for these yet, and prices are discouraging. A few early trumpet Daffodils are in bloom, and those varieties that force best will soon make a feature in the market. We noticed hundreds of plants of Lilium longiflorum in bloom, or approaching that stage, and also a few plants of L. auratum.

Most of our readers know that Mr. Iceton cultivates Palms and other foliage plants in unusual numbers, for use in the furnishing and decorative trade. There are good specimens of nearly any size, representing most of the popular species of Palm, also a few good plants of Araucaria excelsa, a capital batch of Eurya latifolia, Aspidistra lurida, Fatsia japonica, Dracæna Lindeni, Asparagus, Bamboos, &c. The Kentias are the most popular among Palms, and they stand well in the atmosphere of a dwelling-room; but we have found the more delicate-looking, graceful Cocos Weddelliana to succeed for an equal length of time in the same condi-

tions. Phœnix rupicola makes a very pretty vase plant, and is the handsomest of the genus. Mr. Iceton, jun., declared that it will continue in good condition in a dwelling-room as long as most Palms.

Mr. Iceton has another nursery at Chiswick, which contains Palms, and where a little forcing of flowering bulbs is practised. Florists have found the general furnishing and decorative trade not very brisk for some time past, and Christmas festivities in town would probably have been more numerous but for the exodus of so many of the richest members of society to attend the famous Durbar at Delhi.

FOREIGN CORRESPONDENCE.

NEW WINTER RHUBARB.

In a recent number of your valued paper, I noticed some remarks regarding the New Winter Rhubarb that had been exhibited by different parties and under different names at the Drill Hall exhibition. In a number of the *Horticultural Advertiser*, of more recent date, there appeared a clipping from your paper on the subject. I suspected that the Rhubarb offered as Sutton's Crimson, Topp's Winter, and what we have in the States under the name of Crimson Winter, were the same. I sent on the clipping to Luther Burbank, of Santa Rosa, Cal., for his opinion, and am just in receipt of his reply, which reads as follows:—

"Yours just received with the clipping from the *Horticultural Advertiser*. All the Rhubarb mentioned is without any doubt Topp's Australian Crimson Winter Rhubarb. Topp's Crimson Winter or Crimson Winter, is the name it goes by in Australia and New Zealand. I introduced it to America about eight years ago, and have sent much of it to England, among the parties being some of those mentioned in the clipping. I enclose circular describing it."

This communication may be of interest, and I trust it will suggest the propriety of seed and plant dealers continuing to offer varieties under the names given them by the originators. These much multiplied synonyms, are both harmful and expensive.

It may not be out of place to mention that Mr. Burbank advises me that he has raised from the Topp's Australian Crimson Winter Rhubarb, "a new hybrid variety bearing stalks about six times as large, and in flavour surpassing any Rhubarb ever known." It is not yet for sale.
Archibald Smith, Boston, Mass.

MARKET GARDENING.

HYDRANGEA PANICULATA FOR FORCING.

The present is a good season for potting this plant, 7 and 8-inch pots being the most useful size into which to put them. The plants are saleable from March to August, and although great numbers are sold, the demand for them never abates. With this potting the "cut backs" are potted at the present season. Market men generally purchase the plants from the trade, and the shoots on these plants will be some 3 feet in length, and from 6 to 12 inches have to be cut off, in order to make the plant symmetrical, and induce buds at the bottom to break, good foliage being an important item.

As these plants are potted, they are stood on dung-beds made about 2 feet deep, the heads of the plants however being entirely in the open. This hot-bed treatment encourages the growth of roots, and the ammonia given off benefits the top growth. In about a month later the first batch of plants will be removed to a span-roofed house, which is heated with two rows of pipes 3 inches in diameter on each side and underneath the bed, the object being to keep the roots active. Red-spider is kept under by copious syringing and humidity, especially in the early part of the season. *S. C.*

AN INTRODUCED PARASITE ON GRASS.

Twelve years ago, specimens of Bromus unioloides and Festuca bromoides, attacked by a parasitic fungus, were received at Kew from Patagonia and Bahia Blanca. This fungus proved on examination to be undescribed, and was named Cintractia patagonica, Cke. & Mass. Cintractia was at one time included in the older genus Ustilago, the species of which produce "smutted" corn. Nowadays, the name Ustilago is confined to those fungi whose spores form a loose, sooty powder, which is blown away at maturity. In Cintractia, on the other hand, the spores, which are formed in the ovary, as in Ustilago, are compacted into groups or spore-balls, that do not separate at maturity, but collectively form a hard black mass, and are only dispersed when the diseased grain has decayed on the ground, or has passed through the alimentary canal of some animal.

Some time ago an English traveller in South America observed that Bromus unioloides was grown mixed with Lucerne, for fodder. Seed of the Bromus was brought home, sown, and in due course produced not only fruit, but also its parasitic messmate, Cintractia, both quite as vigorous and well-developed as when growing in their original home.

It will be interesting to note whether host or

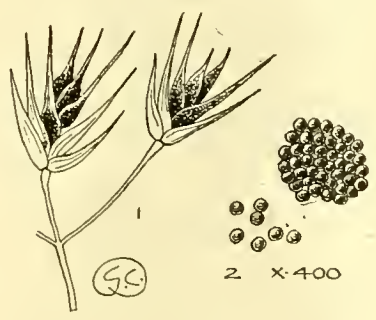

Fig. 7.—Cintractia patagonica on grass.

parasite, or both, can establish themselves in this country. There are plenty of species of Bromus and Festuca in Britain to choose from, if the fungus is desirous of trying a new host-plant, and its presence will be acceptable as a new botanical curiosity; but we trust the line of attack will be confined to wild grasses, and also in moderate quantity. We have already a superabundance of cereal diseases caused by fungi.
Geo. Massee.

SOUTH AFRICA.

THE FLORA OF ELANDS-LAAGTE, &c.

The visit to Elands-Laagte was very unpromising. A storm was brewing, but I ventured, getting back after sundown with an empty bag, there being very few flowers.

On the flat lands between Elands-Laagte, Glencoe Junction, and Dundee, the flowers were abundant, amongst them some highly-coloured Crinum longifolium, and still the rose-coloured form of Sparaxis pulcherrima. I had not at this point reached the purple, far less the black-coloured variety, Mr. Medley Wood expected I should meet with. These flat lands are about 4,000 feet above sea-level.

My next objective was Newcastle, further north, and the centre of the Natal coal-fields. It is not unworthy of notice that New South Wales and Natal should both name their coal-fields after Newcastle in the Motherland. Newcastle is a well laid out town, and should it develop and cover its building area, it will enjoy roomy streets I noticed in Spain, as in Natal, that where there are coal deposits, flowers are not abundant.

My next move was to Charlestown, in the extreme north territory of Natal, the railway skirting and surrounding the famous Majuba Hill, the scene of the reverse which cost so much blood, and money, on the British side, to wipe out. Shortly after 8 A.M., October 30, I started from the hotel to visit this famous hill, and ascended to 6,000 feet above sea-level, and estimated that there were still 2,000 feet to cover before reaching the summit; so decided to leave this part of the hill to younger feet and content myself with a walk round and see where Colley went up in the night unknown to the Boers. It was such a climb as none of our troops have been called upon to undertake in this last great war with the Boers.

I found many flowers on the south side of Majuba, and I recommend it as a good hunting ground. Unfortunately, I lost my list of names, but from the bottom to the point I reached, there were many genera and species. The most interesting to me was a Scilla, I think, with rich pink flowers, and bright green leaves, spotted black. Some of these I collected and posted to London for Kew, Cambridge, Glasnevin, and Max Leichtlin, and one plant for Mr. J. Medley Wood for a name, not that it is so rare as I supposed at the time, as I have since found it pleutifully in the Transvaal, but all the same it is to my eye a beautiful bulbous plant for pot culture, with leaves about 6 inches long; flowers about 4 inches, and one to six flowers to a bulb, according to size. The bulbs on Majuba were the size of small Walnuts, those I have since found on the veldt are as large as a medium-sized Hyacinth. I have collected seeds on the veldt, but fear they will not ripen.

Natal is a truly British Colony, made up mainly of British, Indians, and Kaffirs, the latter at Pietermaritzburg come into the town quite dandies. Standing at the police-station, I saw quite a bevy of strapping young Kaffir girls pass, elegantly attired in their blankets, and over this a loose net, their skins well oiled. I asked the black policeman who these were, and he replied "Unmarried Kaffir ladies." I said "How are the married ones distinguished?" This it was pointed out was done by drawing the hair at an angle from the top of the head in the shape of a bottle without the neck and by using some composition to make it solid, also by colouring the hair red. The young Kaffir belles are looking forward to the establishment of barracks at Pietermaritzburg, and for Tommies as husbands.

At Howick I spent some time going from one store to the other, chatting with the proprietors, as they usually sit outside their shops enjoying the air, and on the alert to catch buyers. The buyer in most countries has little national sentiment. He spends his money where he can get the most for it in return, and I suppose the Indians, who are commercially very important here, can offer the best value. Their headquarters are at Durban, where there are merchants of great wealth who supply these smaller traders. Messrs. Harvey Greenacre & Co., very large and rich merchants, anxious to extend their premises called upon their neighbour, an Indian, and asked him what he would take to clear out. He replied, "I have been thinking these last few weeks to call and ask you how much you would take to let me have your premises to extend my business."

When in Durban, I went out to one of the extensive Sugar plantations, and saw the whole process from the culture of the cane to the production of the white crystallised article ready to put on the market. The manager told me they were much hampered for want of labour. The Costal Sugar plantations wanted this year 18,000 coolies as a necessity, but did no

expect that they would get more than 6,000. As in Fiji, a portion of these manage to remain or return as emigrants, and thus Natal bids fair to be an Indian settlement. As labourers they are superior to the Kaffir, being an intelligent race. They act as railway porters, as labourers on the permanent way, &c. One of these latter went out with me one day, and I found him as keen at the search as I was, and I advise any botanist doing South Africa to engage Indians as guides and carriers.

The farming prospects of Natal are great, and if the whites take to the land, and the Indians look after the shops, there is no reason why this fine colony should not be rich and prosperous. Of course, the British will have to learn how to handle the Kaffir, leaving those on the spot to be the best judges, and ceasing to judge other people's knowledge by their ignorance. I do not suppose the whites will give up the commercial element in the towns without a struggle. Some say the Indian is at present master of the position as regards commerce. I am not of that opinion, but Sir Albert Hine must know how things stand, and by the introduction of smart business men there may yet be a chance to save the colony, commercially and agriculturally, for the British race. *Peter Barr, V.M.H.*

NOTICES OF BOOKS.

Greenwich Park: Its History and Associations. By A. D. Webster. (Greenwich: Richardson.)

This book contains chapters on: The early history of the Park—Laying out the Park—Rangers and Keepers of the Park—Greenwich Castle—Royal Observatory—Ancient Barrows—Underground Passages and Conduits—Interesting Finds in the Park—Greenwich Fair—Royal Sports and Pastimes—Historic Houses around the Park—Distinguished Persons who have visited the Park—Changed Appearance—Deer in the Park—Fauna and Flora of the Park—Trees and Shrubs in the Park—Entomology of the Park—Fungi in the Park—Geology of the Park—Roman Remains in Greenwich Park, with descriptions of finds, lists of Coins and Emperors—Miscellaneous Notes, &c.—together with illustrations of many rare maps and drawings of the Park."

The summary of the contents above given will serve to show the amount and nature of the interest attaching to this, the oldest and by no means the least interesting of our public parks. It dates, indeed, from 1433.

The most important feature of the Park, as it now exists, consists in its noble specimens of the Sweet Chestnut, with their spirally twisted bark. When they were planted is not told in Mr. Webster's book, so far as we have observed. The Elms have long since passed their prime, but the Purple Beech, the Tulip-tree, the Ailanthus, and very many others, are still in full vigour. Mr. Webster tells of a Thorn fully 50 feet high, and over 7 feet in girth of stem; whilst in the enclosed ground near the pond no fewer than 1,300 kinds of trees and shrubs are to be seen, affording truly an excellent object lesson. Greenwich is becoming more and more smoky as London extends, but for all that, hardy Bamboos, Roses, and numerous aquatic plants, are to be seen in a thriving condition. Aponogeton distachyum produces in abundance its curiously shaped and deliciously fragrant flowers. Cypripedium spectabile, Orchis foliosa, Arundo Donax, Gunnera manicata, and Eryngium pandanifolium are among the interesting plants noted by Mr. Webster, and the few we have cited will serve to show the great interest which attaches to this noble Park. Bulbous plants have been planted in the grass in great abundance, and whilst the ordinary "bedding out" is nearly unrepresented—"the beautifully undulating and well-wooded character of the grounds being far too natural to admit of such a system." One of the principal objects aimed at has been to cherish and retain as far as possible the wild and natural character of this royal heritage.

A useful map and numerous illustrations add to the value of the work. We have necessarily only alluded to the features which fall more especially within our own province, but the antiquarian, the lover of animals, the entomologist, the geologist, and the naturalist generally, will find much to interest them in these pages. A description of no fewer than 115 coins found within the Park, ranging from the time of Marc Antony, who slew himself B.C. 31, to that of Honorius, who died in 425, comprising some forty Emperors, is given.

Trees and Shrubs for English Gardens. By E. T. Cook. (*Country Life* Office.)

A good book on trees and shrubs is a real want. Few books are more often enquired for, and until now we have had a difficulty in replying to our correspondents who have asked for information on the point. By far the best are the publications of Loudon, the *Arboretum* and the *Encyclopædia of Trees and Shrubs*, but these, however excellent in their way, are now long out of date, and moreover, they cannot readily be obtained. They comprise also a great deal of information which people ought to require but do not. Mr. Cook has steered clear of this difficulty; he has not added to the bulk of his volume by the insertion of matters which the public does not want. In this no doubt he has done wisely, but if it was not desirable to enenmber his pages with what the general reader might deem superfluous, he might have indicated more fully than he has done the sources from which further information may be derived. We do not find, for instance, any mention of Prof. Sargent's *Silva*, though that book contains a perfect mine of information relating not only to North American trees, but to trees and shrubs generally.

The plan followed by the author of publishing discursive chapters on generalities necessarily leads to repetition. The varying length and style of these chapters, or sections of the book, for the word chapter does not occur in it, suggests that they were written by different hands; and indeed the contributions of Mr. Bean and others are freely acknowledged. The chapter on pruning flowering shrubs is a valuable one, as condensing information that is troublesome to get; but of all the sections into which Mr. Cook's book is divided, that entitled "Some Hardy Flowering Trees and Shrubs" is the most useful. This is an alphabetical list, comprising the names of the principal genera and species, with details relating to their native country and peculiarities of growth. The habitat of the Horse-Chestnut, now known to be in the mountains of Greece, is given as the mountains of Tibet. It is strange how long it takes to dislodge an error of this kind, in spite of repeated correction. The spelling of Daboecia and of Hippophae are points on which differences of opinion may exist, but uniformity is at least desirable, and as a general rule, the *Index Kewensis* is the safest guide to follow.

The plant called Lycium barbarum, so useful by the seaside and for keeping up the soil on sloping banks, is, as Mr. Nicholson has shown, L. sinense.

Mr. Cook's book will do great service by calling attention to a somewhat neglected phase of gardening, whilst it will also be of service to the amateur by putting before him a mass of information that he would otherwise have to seek in a variety of other books. In these days of trashy gardening books, it is a pleasure to come across one which bears the stamp of original observation, judicious inference, and industrious research. If such a book be occasionally faulty in detail, the reader will readily condone the defect when the immensity and variety of the subject are borne in mind—and in view of the mass of useful information that is placed within his reach. Tree lovers have reason to be grateful to Mr. Cook and his publishers.

Response in the Living and Non-Living. By Jagadis Chunder Bose, D.Sc. (London: Longmans.)

The uninitiated reader might think that the work whose title is given above was a treatise on table-turning or on ghostly apparitions. It is really a record of experiments and observations made by a Professor in the Presidency College, Calcutta, on the effect produced by a stimulus of any kind on living or dead matter. The best method of conveying an idea of the nature and scope of the book is to quote the author's own summary:—

"We have seen that stimulus produces a certain excitatory change in living substances, and that the excitation produced sometimes expresses itself in a visible change of form, as seen in muscle; that in many other cases, however, as in nerve or retina, there is no visible alteration, but the disturbance produced by the stimulus exhibits itself in certain electrical changes, and that whereas the mechanical mode of response is limited in its application, this electrical form is universal.

"This irritability of the tissue, as shown in its capacity for response, electrical or mechanical, was found to depend on its physiological activity. Under certain conditions, it could be converted from the responsive to an irresponsive state, either temporarily as by anæsthetics, or permanently as by poisons. When thus made permanently irresponsive by any means, the tissue was said to have been killed. We have seen further that from this observed fact, that a tissue when killed passes out of the state of responsiveness into that of irresponsiveness; and from a confusion of 'dead' things with inanimate matter, it has been tacitly assumed that inorganic substances, like dead animal tissues, must necessarily be irresponsive, or incapable of being excited by stimulus—an assumption which has been shown to be gratuitous."

* * * *

"We have seen that amongst the phenomena of response there is no necessity for the assumption of vital force; they are, on the contrary, physico-chemical phenomena, susceptible of a physical inquiry as definite as any other in inorganic regions.

"Physiologists have taught us to read in the response-curves a history of the influence of various external agencies and conditions on the phenomenon of life. By these means we are able to trace the gradual diminution of responsiveness by fatigue, by extremes of heat and cold; its exaltation by stimulants, the arrest of the life-process by poison.

"The investigations which have just been described may possibly carry us one step further, proving to us that these things are determined, not by the play of an unknowable and arbitrary vital force, but by the working of laws that know no change, acting equally and uniformly throughout the organic and the inorganic worlds."

Timber in South Africa.—If tree-growing in South Africa be not a rapidly expanding industry, its consumption of timber is becoming noteworthy; as for example we noted the other day that some £300,000 worth of timber is imported annually by Cape Colony. The department at Pietermaritzburg in Natal is attending to the afforestation of that important Colony, and have just received the report of an expert, which we believe covers the whole subject of site, soil, and variety suited to locality—and generally all matters connected with the planting of wood in favourable localities.

Obituary.

JOHN PEED.—We regret to have to inform our readers of the death of the senior partner of the firm of J. Peed & Son. He passed away at his residence in Streatham Park on the 24th ult., after about five weeks' illness. The deceased was in his seventy-second year, and had been connected with gardening all his life, having commenced at the early age of eight as a garden boy. He started business in the year 1860 as a gardener and florist at Brixton, afterwards removing to Roupell Park Nurseries, and later on opening a branch establishment at Streatham Park. The interment took place at Norwood Cemetery on Saturday, the 27th ult., a great number of friends and employés being in attendance.

SOCIETIES.

DEVON & EXETER GARDENERS'.

AT the fortnightly meeting of the Devon and Exeter Gardeners' Association, held at the Guildhall, Exeter, recently, an instructive paper entitled "The Fuchsia and its Culture," was read by Mr. G. CAMP, gardener at Culver.

BECKENHAM HORTICULTURAL.

ON Friday evening, December 19, Mr. W. Beale, gr. Hayes Place, read a paper on that gem of a winter-flowering plant, Begonia Gloire de Lorraine, which does its best to liven many a winter day with its bright green handsome foliage, and beautiful rosy flowers. Since M. Lemoine, of Nancy, raised the plants, endless attempts have been made to secure seed, but so far the flowers of B. Gloire de Lorraine absolutely refuse to be fertilised. From about thirty varieties of winter-flowering Begonias grown at Hayes Place, only two really produce pollen, viz., B. Corallina, and B. Erfordia. The various sports were discussed, together with the details of propagation by cuttings and leaves. *M. W.*

NATIONAL SWEET PEA.

DECEMBER 29.—The annual meeting of this Society was held at the Hotel Windsor, on Monday last, when Mr. Geo. Gordon presided over a good attendance. The following paragraphs are extracted from the Committee's report.

"The closing of the Royal Aquarium forces the Society to seek a new home for its exhibitions. After the most careful consideration your Committee decided to endeavour to make arrangements with the authorities at Earl's Court . . . . . and subsequently the Earl's Court management offered the Society a donation of £10 10s. towards the prize fund, free admission to all members, and the erection of tabling in the spacious Prince's Hall."

"Upon the completion of the judging on the first day of the last exhibition, a meeting was held to consider the merits of the new varieties, of which some two or three dozens were shown. The judges were invited to participate in the proceedings. First class Certificates were awarded to Dorothy Eckford (Eckford), exhibited by the Rev. Leslie Knights-Smith, Brightstone, Isle of Wight, and to Golden Rose (Burpee), exhibited by Messrs. I. House & Sons, Westbury-on-Trym, Bristol. Florence Molyneux (Dobbie), exhibited by Messrs. Dobbie & Co., Rothesay, was Commended."

The balance sheet shows that there is a sum of about £30 to the Society's credit at the bank.

Mr. R. Dean resigned the position of Exhibition Secretary, and the duties of this office will be carried out by Mr. H. J. Wright, General Secretary. The next show will be held on July 15 and 16, at Earl's Court.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

AT the last meeting for the year 1902 there was a large attendance of members present, presided over by Mr. Leonard Sutton. The subject arranged for the evening was "A Chat on Bouquet Arrangements," by Mr. J. T. Powell, gr., Park Place, Henley-on-Thames. This proved to be one of the most interesting meetings held by the Association. Mr. Powell, in introducing his subject, referred to the various events for which bouquets were required, and then gave a practical demonstration of the making of a bridal shower-bouquet, explaining which he considered the right method of wiring flowers, &c. Mr. Powell was requested to take up the subject of sprays and button-hole-bouquets at the first ordinary meeting in the new year.

NATIONAL CHRYSANTHEMUM.

THE SHOWS GO TO THE CRYSTAL PALACE.

DECEMBER 29.—A special meeting of the Executive Committee was held at the Royal Aquarium, to receive a report from the Sites Sub committee appointed to inspect suitable places in which to hold the meetings of the Society.

The report set forth that various halls had been inspected, and visits had been made to Earl's Court, Agricultural Hall, &c., some being found inadequate as to size, some difficult of access, while the terms asked for others were practically prohibitory. The committee were still negotiating with a view of securing a suitable place for the business meetings of the Society, and hoped shortly to make a report. Communications had been opened with the Crystal Palace authorities, with the result that a provisional agreement had been come to by which the Board of Directors of the Crystal Palace agreed to the National Chrysanthemum Society holding three shows at Sydenham, the first on Oct. 6 and 7; the second (a large one) on November 10, 11, and 12; and a third show, for two days, during the second week in December. Towards the prize schedules of the first and the last, the Crystal Palace authorities are prepared to give the sum of £25, and medals to the value of £3 at each show; to the large one, in November, the sum of £150, and medals to the value of £10. The necessary staging would be provided, and the Crystal Palace authorities would advertise the show in the daily and weekly papers. The agreement would contain a proviso to the effect that the sum of money given should be paid within twenty-one days of the holding of each show.

In the face of these terms, it was obvious that a revision of the schedules of prizes was necessary, and the committee recommended that the medals of the Crystal Palace Co. should be given to miscellaneous exhibits, supplemented by honorary awards. That all exhibitors in the miscellaneous class should become members of the Society, subscribing a sum of not less than two guineas annually, which would entitle them to exhibit at all the shows held by the Society in any one year, this subscription to take the place of the sum usually charged for space at the November exhibition. That in the cases of the large classes in which unusually large sums of money are offered as prizes, a special entrance fee not exceeding five shillings be charged, in addition to an exhibitors' entrance fee of five shillings, and in addition to the annual subscription.

In order to safeguard the interests of the growers of small collections who enter into the minor classes, it was resolved after a long and somewhat involved discussion, "that in all classes under eighteen blooms in the open and amateurs divisions, an entrance fee of one shilling per class be charged for all entries made at each show of the Society. It was further resolved that affiliated Societies enter for competition in the trophy class on payment of an entrance fee of five shillings. With these modifications, the amended report of the committee was adopted, with the addition of the arrangement that the December exhibitions take place on December 2 and 3, instead of December 9 and 10

ANSWERS TO CORRESPONDENTS.

APPLE-TREES AND RABBITS: *X.* Procure a pailful of whitewash; stir into it a small quantity of soot and clay, or cow-dung, add a wine-glassful of spirits-of-tar, and therewith paint the stems to a height of 3 feet. It may be necessary to renew it in the course of three months, but rabbits do not gnaw the bark of trees when other food can be obtained.

BOOKS: *R. H., Belgrave.* There is no book in the English language on the subject. 1, Ruscus aculeatus; 2, Poa aquatica.

CALLA FLOWER: *J. M.* This condition is not uncommon. We receive many such specimens. —*J. K.* The double-spathed Calla is not uncommon. If it could be fixed it would be valuable.

CHRYSANTHEMUM, VINE, AND CARNATION DISEASED: *J. E. S.* Leptosphæria Ogilviensis, B. & Br., forming black streaks on Chrysanthemum stem. Carnation-leaf disease caused by punctures of aphides. Black spots on Vine-leaf caused by Coniothecium viticolum. Against the fungus employ liver-of-sulphur half an ounce in a gallon of water. The aphis may be killed by fumigation with Tobacco, or the XL-All vapour. *G. M.*

ERICA CARNEA, AND E. C. ALBA: *C. J. H.* The first, a very dwarf, early flowering species, native of Germany; the second, merely a white flowered variety of the same. There are white and pink flowered varieties of E. tetralix, which is a common British species. What you mean by "common pink and white Heather" we do not know, but suppose you mean Calluna vulgaris.

GLASSHOUSES AND GARDEN LABOUR: *A. McK.* You have much more to look after than you can attend to properly, and instead of yourself and and a boy doing the work, there ought to be three men and a boy.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*A. J. R.* 1, Cymbidium Tracyanum; 2, C. giganteum; 3, Cattleya labiata.—*B. C.* Dendrobium speciosum. It will grow well in a warm conservatory; give plenty of sunlight when possible.—*Foreman.* 1, Begonia manicata; 2, B. nitida; 3, B. argyrostigma; 4, B. fuchsioides; 5, Dracæna marginata.—*T. L., Surrey.* One of the hybrids of Rhododendron, like Nobleanum, but whether a named variety or not we cannot say.—*E. T.* Odontoglossum gloriosum, which some authorities include under O. odoratum. Yours is a very good variety of it.—*R. J., Stratford.* Ornithogalum lacteum.—*Enquirer.* 1, Hibiscus Cooperi; 2, Abutilon marmoratum; 3, Begonia incarnata metallica; 4, B. Ingrami; 5, Carex japonica variegata of gardens; 6, Nephrolepis tuberosa.—*F. S.* Dendrobium fimbriatum. —*J. V. S.* Epidendrum (Nanodes) Medusæ.—*Perthshire.* 1, Juniperus communis; 2, Vaccinium myrtillus; 3, V. Vitis-Idæa.—*Poppy.* A species of Protea.

PELARGONIUM-LEAVES BLOTCHED: *E. R.* There is no trace of Melon-leaf blotch present on the Pelargonium-leaves. The fungus is Botrytis. Spray with a solution of permanganate of potash; soak the soil also with the same solution. *G. M.*

PLANTING JAPANESE IRIS (KÆMPFERI) AND BAMBOOS: *E. B.* The Irises may be planted just previous to the commencement of growth, or when growth has almost ceased in early autumn, planting shallow, that is not covering the rhizomes with soil, although a few bits of stone to steady the plants do no harm. In this country it is not advisable to keep them constantly under water. The Bamboos, if imported in autumn or winter, should have the balls of earth and roots soaked in water, and then be potted and placed in the greenhouse for the winter. The soil must not be kept too wet. The leaves, or the bare culms if the leaves have fallen, should be syringed twice daily. Harden off in May, and early in the following month plant them out permanently. Do not disturb the roots at all, even if pot-bound; and apply water at the root in the absence of copious rain.

THE LOT OF THE GARDENER, WAGES, &C.: *A. B., and others.* Nothing that gardeners themselves may do in forming trade unions, mutual help associations, writing letters to the press, &c., will bring about the desired amelioration in the condition of many of the gardeners in small places in this country; and the only way out of the *impasse* is for parents, guardians, head gardeners, and others, to refrain from putting young men and boys to the trade. It would ease the present crowded state of the ranks of gardeners if a few thousands would betake themselves to Canada, and other colonies, where the services of experienced cultivators of the soil would be highly valued, and where the chances of making a good living are superior to what they are in old England.

"WINTER IRIS": *C. J. H.* What is doubtless meant by this term is the new hybrid, early flowering, alpine Irises, raised by Mr. W. J. Caparne of Guernsey, and described by him in *Gardeners' Chronicle*, November 30, 1901, and accompanied by figures of flowers of natural size. They flower very early in the spring.

COMMUNICATIONS RECEIVED.—C. T. D.—F. L.—A. W. S. —Henry Cannell—Editor of Nature—Leon Pardé—F. L.—A. L. L.—A. Cogniaux, Nivelles, with thanks—Prof. Sargent, Boston—W. Siehe, Mersina—C. C. H.—A. W.—A. L. L., Photos—T. H. C.—F. W. B.—Prof. Burvenich—Frank Köhler—H. W. W.—J. O'B.—C. T. Druery.—J. L.—Expert.—E. H. J.—J. F.—E. C.—J. R. J.—T. Denny.—F. C.—W. R. F.—R. D.—W. A. C. —Ch. S.—A. D.—J. H. B.—H. M.—H. A.—W. Howe.—R. Davidson—C. Page.—H. S—A. Pope.—G. W. Hodgson.—H. Boshier.—Income Tax Adjustment Agency. —P. W. T.—A. J. A. B.

(For Markets and Weather, see p. xiv.)

THE GARDENERS' CHRONICLE

1903

JANUARY.

1	Th	Bank Holiday in Scotland. King's taxes due.
2	F	*Gardeners' Chronicle* first issued, 1841.
3	S	Av. mean temp. at Chiswick, 36·2°.
4	**S**	*2nd Sunday after Christmas.*
5	M	Dividends due at Bank.
6	Tu	Moon first quart. 9h. 57m. aft. : Sun rises 8h. 7m. ; sets 4h. 6m.
7	W	Old Christmas Day.
8	Th	Irish Gardeners' Assoc. and Benevolent Soc. Gen. Ann. meet.
9	F	Fire insurance ceases.
10	S	R. Bot. Soc. meet.
11	**S**	*1st Sunday after Epiphany.*
12	M	Surveyors' Institution meet. United Hort. Benefit and Provident Soc. Com. meet.
13	Tu	Roy. Hort. Soc. Coms. meet at the Drill Hall, Buckingham Gate, Westminster. Moon full.
14	W	
15	Th	Linnean Soc. Special Gen. meet., 8 p.m.
16	F	
17	S	Av. mean temp. at Chiswick, 37·6°.
18	**S**	*2nd Sunday after Epiphany.*
19	M	Surveyors' Inst. (Junior) Meeting.
20	Tu	Moon last quart. 11h. 49m. morn.
21	W	R. D. Blackmore died, 1900.
22	Th	Gardeners' Roy. Benevolent Inst. Ann. Meet. and elect. of Pensioners, at 3 p.m. at "Simpson's," Strand. Death of Queen Victoria and accession of King Edward VII., 1901.
23	F	
24	S	
25	**S**	*3rd Sunday after Epiphany.*
26	M	Surveyors' Inst. Meet. Av. mean temp. at Chiswick, 38·8°.
27	Tu	Royal Horticultural Society's Coms. meet. Lecture on "The Blue Nymphæa."
28	W	R. Bot. Soc. meet. New Moon 4h. 39m. aft.
29	Th	W. Wildsmith died, 1893.
30	F	First Lifeboat built, 1790.
31	S	Av. mean temp. at Chiswick, 39°.

FEBRUARY.

1	**S**	*4th Sunday after Epiphany.* Partridge and Pheasant Shooting ends.
2	M	*Candlemas.*
3	Tu	Nat. Auricula Soc. (Midland section) meet at Hotel Métropole, Birmingham.
4	W	Av. mean temp. at Chiswick, 39·3°.
5	Th	Linnean Soc. meet (Botany). Moon first quart. 10h. 13m. morn.
6	F	Sun rises 7h. 35m. ; sets 4h. 55m.
7	S	Soc. Française d'Horticulture de Londres meets.
8	**S**	*Septuagesima Sunday.*
9	M	Surveyors' Inst. Meet. U. Hort. Ben. and Prov. Soc. Com. meet.
10	Tu	Roy. Hort. Soc. Committees meet., also Ann. Meeting of Fellows.
11	W	
12	Th	Moon full 0h. 58m. morn.
13	F	Roy. Gardeners' Orphan Fund Annual Meeting at Cannon St. Hotel.
14	S	R. Bot. Soc. meet. St. Valentine's Day.
15	**S**	*Sexagesima Sunday.*
16	M	Av. mean temp. at Chiswick, 39·5°.
17	Tu	
18	W	Sun rises 7h. 12m. ; sets 5h. 18m.
19	Th	Linnean Soc. meet. Moon last quart. 6h. 23m. morn.
20	F	Surveyors' Inst. Annual Dinner at 7 p.m.
21	S	Cardinal Newman born, 1801.
22	**S**	*Quinquag. (Shrove Sunday).*
23	M	Surveyors' Inst. meet. Sun rises 7h. 1m.
24	Tu	*Shrove Tuesday.* Royal Hort. Society's Committees meet. Lecture on "Some Unappreciated Plants."
25	W	*Ash Wednesday.* R. Bot. Soc. meet.
26	Th	Irish Gardeners' Assoc. meet.
27	F	Surrender of General Cronje, 1900. New moon, 10h. 26m morn.
28	S	Relief of Ladysmith, 1900.

MARCH.

1	**S**	*1st Sunday in Lent.* St. David's Day.
2	M	Pope Leo XIII. born, 1810.
3	Tu	
4	W	Av. mean temp. at Chiswick, 39·3°.
5	Th	Linnean Soc. meet (Zoology).
6	F	Moon first quart. 7h. 14m. aft.: Sun rises 7h. 35m.; sets 4h. 55m.
7	S	Soc. Franç. d'Hort. de Londres meet. Surveyors' Inst. (Junior) meet.
8	**S**	*2nd Sunday in Lent.*
9	M	United Hort. Ben. and Prov. Soc. Ann. meet. at Caledonian Hotel, Adelphi Terrace, Strand. Surveyors' Inst. meet.
10	Tu	Roy. Hort. Soc's. Coms. meet. Lecture on "Natural Selection *v.* Adaptation."
11	W	
12	Th	Sun rises 6h. 24m.; sets 5h. 57m.
13	F	Full moon 0h. 13m. aft.
14	S	R. Bot. Soc. meet. Av. mean temp.,at Chiswick, 43·0°.
15	**S**	*3rd Sunday in Lent.*
16	M	Duchess of Kent died, 1861.
17	Tu	St. Patrick's Day.
18	W	Av. mean temp. at Chiswick, 41·9°.
19	Th	Linnean Soc. meet.
20	F	[21] Chas. Fisher d. 1902.
21	S	Moon last quart. 7h. 8m. morn. Spring Quart. begins.
22	**S**	*4th Sunday in Lent.*
23	M	Surveyors' Inst. meet.
24	Tu	Roy. Hort. Soc's. Coms. meet (Hyacinth & Tulip Show). Lecture on "Photomicrography."
25	W	Lady Day R. Bot. Soc. meet. Liverpool Hort. Assoc. Bulb and Plant Exhibition.
26	Th	Roy. Agr. & Hort. Soc. of Jersey Show of Bulbs. Irish Gardeners' Assoc. meet.
27	F	[28] G. F. Wilson d. 1902.
28	S	Annular Eclipse of the Sun.
29	**S**	*5th Sunday in Lent.* New moon 1h. 26m. morn.
30	M	Crimean War ended, 1856.
31	Tu	

APRIL.

1	W	All Fools' Day. R. Bot. Soc. Sh.
2	Th	Linnean Soc. meet. (Botany). Cobden d. 1865. Royal Society Chartered, 1663.
3	F	
4	S	Soc. Franç. d'Hort. de Londres meet.
5	**S**	*Palm Sunday.* Moon first quart. 1h. 51m. morn.
6	M	
7	Tu	Roy. Hort. Soc. Coms. meet. Lecture on "New Shrubs and Trees."
8	W	Av. mean temp. at Chiswick, 47·1°.
9	Th	Fire Insurance ceases.
10	F	*Good Friday.*
11	S	R. Bot. Soc. meet. Partial Eclipse of Moon.
12	**S**	*Easter Sunday.* Moon full 0h. 18m. morn.
13	M	Bank Holiday. U. Hort. Ben. & Prov. Soc. Com. meet.
14	Tu	
15	W	Shropshire Hort. Soc. Spring Sh.
16	Th	Linnean Soc. meet. Mungo Temple d. 1902.
17	F	Benjamin Franklin d. 1790.
18	S	Fifteenth International Quinquennial Exhibition at Ghent, Belgium, from 18th to 26th inclusive. Moon last quart. 9h. 30m. aft.
19	**S**	*Low Sunday.*
20	M	Surveyors' Inst. meet.
21	Tu	Roy. Hort. Society's Coms. meet. Lecture on "Horticultural Education." Nat. Auricula and Primula Soc. Sh. at Drill Hall. Brighton Spring Show (2 days).
22	W	R.B.S. meet. Av. mean temp ,Chiswick, 49·7°.
23	Th	St. George's Day. Midland Daffodil Soc. Sh. at Birm'ham. (subject to alteration), 2 days.
24	F	Count Moltke died, 1891.
25	S	St. Mark.
26	**S**	*2nd Sunday after Easter.*
27	M	New moon 1h. 31m. aft.
28	Tu	Mutiny of the *Bounty*, 1789.
29	W	Nat. Auricula Soc. Sh. (Midland Section) at Birm'ham (subject to alteration). Chesterfield Chrys. Soc. meet. (probable).
30	Th	Norfolk & Norwich Hort. Soc. Sh. Colchester Rose and Hort. Soc. Sh. Irish Gardeners' Assoc. Meet.

MAY.

1	F	St. Philip and St James. May Day. R. Bot. Soc. lecture. Av. mean temp. at Chiswick, 51°.
2	S	Soc. Franç. d'Hort. de Londres meet.
3	**S**	*3rd Sunday after Easter.*
4	M	Surveyors' Inst. (Junior) meet. Moon first quart. 7h. 26m. morn. Bank Holiday in Scotland.
5	Tu	Roy. Hort. Soc. Coms. meet. Lecture on "Peculiarities of the Cape Flora." Roy. Gdnrs'. Orphan Fund Ann. Dinner at Hotel Cecil.
6	W	
7	Th	Linnean Soc. meet. (Zoology). Surveyors' Instit. meet.
8	F	R. Bot. S. lecture. John Stuart Mill d. 1873.
9	S	R. Bot. Soc. meet. Half-Quarter day.
10	**S**	*4th Sunday after Easter.*

JUNE.

1	M	Bank Holiday. William Bull d. 1902.
2	Tu	Moon first quart. 1h. 24m. aft.
3	W	Prince of Wales born, 1865.
4	Th	Linnean Soc. meet. Lord Wolseley b. 1833.
5	F	R. Bot. Soc. lect. Sir Daniel Cooper d. 1902.
6	S	Soc. Franç. d'Hort. de Londres meet.
7	**S**	*Trinity Sunday.*
8	M	U. Hort. Ben. and Prov. Soc. Com. meet. Sun rises 3h. 45m.; sets 8h. 11m.
9	Tu	Roy. Hort. Soc. Coms. meet. Lecture on "Fruit Bottling."
10	W	Moon full 3h. 8m. morn.
11	Th	St. Barnabas

JULY.

1	W	Nat. Rose Soc. M. Exhib. in Temple Gardens. Hereford Rose Show Hanley Hort. Fête (2 days). Richmond Hort. Sh. R. Bot. Mus. Promenade. Moon first quart. 9h. 2m. aft.
2	Th	Norfolk Rose Sh. Colchester Rose and Hort. Show.
3	F	R. Bot. Soc. lecture.
4	S	Soc. Franç. d'Hort. de Londres meet.
5	**S**	*4th Sunday after Trinity.*
6	M	Prince of Wales married, 1893.
7	Tu	Roy. Hort. Soc. Coms. Lect. on "Hardy Irises." Wolverhampton Floral Fête (3 days).
8	W	Croydon Hort. Show. R. Bot. Soc. Mus. Prom.
9	Th	Bath Rose Sh. Moon full 5h. 43m. aft. Fire Insurance ceases.

AUGUST.

1	S	Lammas Day. Soc. Franç. d'Hort. de Londres meet.
2	**S**	*8th Sunday after Trinity.*
3	M	Bank Holiday. Sheffield Floral and Hort. Soc. Sh. Headington Hort. Soc. Sh.
4	Tu	Roy. Hort. Soc. Coms. meet. Lecture on "Landscape Gardening."
5	W	Mortimer Hort. Soc. Sh. R. B. S. mus. prom.
6	Th	Av. mean temp. at Chiswick, 62·5°.
7	F	First Reformed Parliament, 1832.
8	S	R. Bot. Soc. meet. Moon full, 8h. 54m. aft.
9	**S**	*9th Sunday after Trinity.*
10	M	R. Bot. Soc. annual meet. U. Hort. Ben. and

12	Tu	
13	W	Av. mean temp. at Chiswick, 52·7°.
14	Th	Old May day.
15	F	R.B.S.lect. Sun rises 4h. 12m.; sets 7h. 42m.
16	S	
17	**S**	*Rogation Sunday.*
18	M	Surveyors' Inst. meet.
19	Tu	Roy. Hort. Soc. Comms. meet., also Nat. Tulip Soc. Sh. and Conference at Drill Hall. Devon Agr. Sh. at Crediton. Moon last quart. 3h. 18m aft.
20	W	Roy. Caledonian Hort. Soc. Sh. at Edinbgh. (2 days).
21	Th	Ascension day.
22	F	R. Bot. Soc. lecture. Av. mean temp. at Chiswick, 55·3°.
23	S	
24	**S**	*Sunday after Ascension.*
25	M	Ann. Dinner of Kew Guild at Holborn Restaurant. Linnean Soc. Anniv. Meet. at 3 P.M. Surveyors' Inst. Ann. Gen. Meet. at 3 P.M.
26	Tu	Royal Hort. Soc. Show in Temple Gardens, Thames Embankmt. (3 days). New Moon 10h. 50m. aft.
27	W	R. Bot. Soc. meet. Bath and West and Southern Counties Show at Bristol (5 days).
28	Th	Irish Gardeners' Assoc. meet.
29	F	Roy. Bot. Soc. lecture.
30	S	Alfred Austen born, 1835.
31	**S**	*Whit Sunday. Pentecost.*

		opened, 1855.
14	**S**	*1st Sunday after Trinity.*
15	M	Magna Charta signed, 1215.
16	Tu	
17	W	R. Bot. Soc. Musical Promenade.
18	Th	Linnean Soc. meet. Moon last quart. 6h. 44m. morn.
19	F	R.B.S. lect. Av. mean temp., Chiswick, 60·1°.
20	S	Queen Victoria acceded to throne, 1837.
21	**S**	*2nd Sunday after Trinity.*
22	M	Summer Quarter begins.
23	Tu	Roy. Agr. Soc. Sh. in London (5 days). Roy. Oxfordshire Hort. Soc. Commemoration Sh.
24	W	Grand Yorkshire Gala & Hort. Exh. at York (3 days). Midsummer Day. Roy. Bot. Soc. Mus. Promenade.
25	Th	Roy. Hort. Soc. Sh. at Holland House, Kensington (2 days). Isle of Wight Rose Sh. (or following day). Jersey Rose Sh. Irish Gardeners' Assoc. meet. New Moon 6h. 11m. morn.
26	F	R. Bot. Soc. lecture.
27	S	Av. mean temp. at Chiswick, 62·4°.
28	**S**	*3rd Sunday after Trinity.*
29	M	St. Peter. Prof. Huxley d. 1895.
30	Tu	

12	**S**	*4th Sunday after Trinity.*
13	M	U. Hort. Ben. and Prov. Soc. Com. meet.
14	Tu	
15	W	Nat. Rose Soc., Northern Sh., Glasgow. Nat. Sweet Pea Soc. Exh. at Earl's Court. [R. Bot. S. Mus. Prom.
16	Th	
17	F	R. B. S. lect. Moon last quart. 7h. 24m. aft.
18	S	Av. mean temp. at Chiswick, 63·2°.
19	**S**	*6th Sunday after Trinity.*
20	M	
21	Tu	Roy. Hort. Soc. Coms. meet. Lecture on "Mediæval Medicines." Nat. Carnation and Picot. Soc. Sh. at Drill Hall, Buckingham Gate.
22	W	Northum., Durham and Newcastle Bot. and H. S. Ex. at Newcastle (3 d.). R. Bot. S. Mus.
23	Th	Duke of Devonshire born, 1833. [Prom.
24	F	R. Bot. S. lecture. New Moon, 0h. 46m. aft.
25	S	
26	**S**	*7th Sunday after Trinity.*
27	M	Av. mean temp. at Chiswick, 63·3°.
28	Tu	North Kildare Hort. Soc. Sh.
29	W	Midland Carnation & Pic. Soc. Sh. at Birmingham, 2 days (subject to alteration). Chesterfield Floral & Hort. Sh. R. Bot. S. Mus. Prom.
30	Th	Irish Gardeners' Assoc. meet.
31	F	R. Bot. Soc. lecture. Moon first quart. 7h. 15 m. morn.

13	Th	Taunton Deane Hort. and Floral Soc. ...
14	F	Old Lammas.
15	S	Reform Bill passed, 1867.
16	**S**	*10th Sunday after Trinity.* Moon last quarter, 5h. 22m. morn.
17	M	T. F. Rivers died, 1899.
18	Tu	Roy. Hort. Soc. Coms. meet. Lecture on "Hollyhocks."
19	W	Shropshire Hort. Soc. Great Sh. at Shrewsbury (2 days). Eastbourne Summer Sh.
20	Th	Roy. Agr. and Hort. Soc. of Jersey Exb. (2 days).
21	F	Devon & Exeter Hort. Soc. Sh. Strathearn Hort. Sh. (2 days).
22	S	New Moon, 7h. 51m. aft.
23	**S**	*11th Sunday after Trinity.*
24	M	St. Bartholomew.
25	Tu	Roy. Oxfordshire Hort. Soc. Sh.
26	W	R. Bot. Soc. meet. Harpenden Hort. Soc. Sh. Bath Hort. Soc. Sh. (2 days).
27	Th	Sandy and Dist. Floral and Hort. Soc. Sh. Irish Gardeners' Assoc. meet.
28	F	
29	S	Moon first quarter, 8h. 34m. aft.
30	**S**	*12th Sunday after Trinity.* Sir J. B. Lawes died, 1900.
31	M	Av. mean temp. at Chiswick, 60·1°. Day 13h. 36m. long.

SEPTEMBER.

1	Tu	Roy. Hort. Soc. Coms. meet. Lecture on Judging Cactus Dahlias. Nat. Dahlia Soc. Exh. at Drill Hall (2 days). Partridge shooting begins.
2	W	Great Fire of London began, 1666.
3	Th	Alnwick Hort. and Bot. Soc. Sh. Paisley Hort. Soc. Sh. (2 days). Av. mean temp. at Chiswick, 59·6°.
4	F	
5	S	Soc. Franç. d'Hort. de Londres meet.
6	**S**	*13th Sunday after Trinity.*
7	M	Moon full, 0h. 20m. morn.
8	Tu	Geo. Canning died, 1827.
9	W	Roy. Caledonian Hort. Soc. Sh., Waverley Market, Edinburgh (2 days). York Dahlia Sh.
10	Th	Empress of Austria assass., 1898.
11	F	
12	S	R. Bot. S. meet. Siege of Vienna raised, 1683.
13	**S**	*14th Sunday after Trinity.*
14	M	U. Hort. Ben. and Prov. Soc. Com. meet. Moon last quarter, 1h. 11m. aft.
15	Tu	Roy. Hort. Soc. Coms. meet. Lecture on "Edible Fungi." Nat. Dahlia Soc. Floral Com. meet at Drill Hall.
16	W	
17	Tu	Sun rises 5h. 39m.; sets 6h. 9m. Hugh Low died, 1893.
18	F	Dr. Johnson born, 1709.
19	S	Av. mean temp. at Chiswick, 56·7°.
20	**S**	*15th Sunday after Trinity.*
21	M	Nat. Chrys. Soc. 1st Floral Com. meet. Sir Walter Scott d. 1832. New Moon 4h. 31m. morn.
22	Tu	
23	W	R. Bot. Soc. meet.
24	Th	Irish Gardeners' Assoc. meet. H. de Vilmorin died, 1899.
25	F	Lucknow relieved, 1857.
26	S	Peter Grieve died, 1895.
27	**S**	*16th Sunday after Trinity.*
28	M	Moon first quart. 1h. 9m. aft.
29	Tu	Michaelmas Day. Roy. Hort. Soc. Fruit and Vegetable Show and Conference in the Chiswick Gardens (3 days).
30	W	

OCTOBER.

1	Th	Pheasant Shooting begins.
2	F	Sun rises 6h. 3m.; sets 5h. 37m.
3	S	Soc. Franç. d'Hort. de Londres meet.
4	**S**	*17th Sunday after Trinity.*
5	M	
6	Tu	Nat. Chrys. Soc. early var. Exh. (3 days) at Crystal Palace. Moon full 3h. 21m. aft.
7	W	Av. mean temp. at Chiswick, 52·1°.
8	Th	Sebastopol taken, 1855.
9	F	Baron Ferdinand von Mueller died, 1896.
10	S	R. Bot. Soc. meet.
11	**S**	*18th Sunday after Trinity.* Transvaal War comm. 1899.
12	M	United Hort. Ben. & Prov. Soc. Com. meet.
13	Tu	Roy. Hort. Soc. Coms. meet. Lecture on "Autumn Strawberries and Raspberries." Moon last quart. 7h. 56m. aft.
14	W	Fire Insurance ceases.
15	Th	Roy. Agr. & Hort. Soc. of Jersey, Show of Fruits and Vegetables.
16	F	Dr. Trimen died, 1896.
17	S	Av. mean temp. at Chiswick, 49·8°.
18	**S**	*19th Sunday after Trinity.* St. Luke.
19	M	Nat. Chrys. Soc. Exec. & Floral Coms. meet.
20	Tu	New Moon 3h. 30m. aft.
21	W	Battle of Trafalgar, 1805.
22	Th	Sun rises 6h. 37m.; sets 4h. 51m.
23	F	C. F. Bause died, 1895.
24	S	Michaelmas Law Sittings begin.
25	**S**	*20th Sunday after Trinity.*
26	M	Nat. Chrys. Soc. Floral Com. meet.
27	Tu	Roy. Hort. Soc. Coms. meet. Lecture on "Pruning Roses."
28	W	R. Bot. Soc. meet. Moon first quarter 8h. 33m. morn.
29	Th	Irish Gardeners' Assoc. meet.
30	F	John Keats, poet, born, 1796.
31	S	All Hallows Eve.

NOVEMBER.

1	**S**	*21st Sunday after Trinity.* All Saints. Jas. [Cypher died, 1901
2	M	
3	Tu	Croydon Chrys. Sh. (2 days). Plymouth Chrys. Sh. Nat. Chrys. Floral Com. meet. Barnsley Chrys. Sh.
4	W	Hereford Fruit and Chrys. Exh. (2 days). Kent County Chrys. Sh. (2 days). Highgate (London) Chrys. Sh. at Alexandra Palace (3 d.). Cardiff Chrys. Sh. (2 days).
5	Th	Linnean Soc. meet. Devon and Exeter Hort. Soc. Chrys. Sh. (2 days). Colchester [Hort. Soc. Chrys. Sh. Moon full 5h. 28m. mn.
6	F	
7	S	Soc. Franç. d'Hort. de Londres meet.
8	**S**	*22nd Sunday after Trinity.*
9	M	U. Hort. Ben. & Prov. Soc. Com. meet.
10	Tu	Roy. Hort. Soc. Coms. Lecture on Merit and Evil of "Size." Nat. Chrys. Soc. Exh., Crystal Palace (3 days). Birmingham Chrys. Exh. (3 days). Oxford Chrys. Sh.
11	W	Chester Paxton Soc. Sh. of Fruits & Chrys. (2 days). Buxton Chrys. Sh. Winchester Chrys. Sh. Liverpool Chrys. Sh. (2 days). Chesterfield Chrys. Sh. (2 days probable).
12	Th	Putney and Wandsworth Chrys. Sh. at Putney (2 days). Roy. Agr. and Hort. Soc. of Jersey Chrys. Sh. Moon last quar. 2h. 46m mn.
13	F	Blackburn Chrys. Sh. (2 days). Bradford Chrys. Sh. (2 days). Eccles, Pendleton and Dist. Chrys. Sh. (2 days). Leicester Chrys. and Fruit Exh. (2 days). Stockport Chrys. Sh. [(2 days). Sheffield Chrys. Sh. (2 days).
14	S	
15	**S**	[14] R. Bot. Soc. meet.
16	M	Anthony Waterer died, 1896.
17	Tu	Chrys. Sh. at Belfast (2 days). West Hartlepool Chrys. Sh. [Sh. (2 days).
18	W	York Chrys. Exh. (3 days). Hull Chrys.
19	Th	Linnean Soc. meet. Chrys. Sh. at Edinburgh (3 days). Norwich Chrys. Sh. (3 days).
20	F	Bolton Chrys. Sh. 21 S.
22	**S**	*24th Sunday after Trinity.*
23	M	Nat. Chrys. Soc. Exec. Com. meet. [Study."
24	Tu	Roy. Hort. Soc. Lecture "Pomology as a
25	W	R. Bot. S. meet. South Shields Chrys. Soc. Sh.
26	Th	Irish Gardeners' Assoc. meet. [(2 days).
27	F	28 S.
29	**S**	*1st Sun. in Advent.* John Morle died, 1900.
30	M	St. Andrew's Day.

DECEMBER.

1	Tu	Queen Alexandra born, 1844.
2	W	Nat. Chrys. Soc. late vars. Exh. at Crystal Palace (2 days). W. H. Protheroe died, 1899.
3	Th	Linnean Soc. meet.
4	F	Moon full 6h. 13m. aft.
5	S	Soc. Franç. d'Hort. de Londres meet.
6	**S**	*Second Sunday in Advent.*
7	M	Av. mean temp. at Chiswick, 42·8°.
8	Tu	Alfred Outram died, 1899.
9	W	George Washington died, 1799.
10	Th	Nat. Rose Soc. Ann Gen. meet. and dinner. Grouse Shooting ends.
11	F	Moon last quart. 10h. 53m. morn.
12	S	R. Bot. S. meet. Robert Browning d. 1889.
13	**S**	*Third Sunday in Advent.*
14	M	Nat. Chrys. Soc. Exec. and Floral Coms. meet. U. Hort. Ben. and Prov. Soc. Com. meet.
15	Tu	Roy. Hort. Soc. Coms. meet.
16	W	Wm. Terriss assassinated, 1897.
17	Th	Linnean Soc. meet. Day 7h. 45m. long.
18	F	New Moon 9h. 26m. aft.
19	S	Sun rises 8h. 5m.; sets 3h. 50m.
20	**S**	*Fourth Sunday in Advent.* Philip Crowley died, 1900.
21	M	St. Thomas. Shortest day.
22	Tu	Winter Quart. begins at midnight.
23	W	R. Bot. S. meet. Sir Henry Gilbert d. 1901.
24	Th	Christmas Eve. Sun rises 8h. 7m.; sets 3h. 53m.
25	F	*Christmas Day. Quarter Day.*
26	S	Bank and General Holiday. St. Stephen.
27	**S**	*First Sunday after Christmas.* Moon first quart. 2h. 23m. morn.
28	M	*Innocents Day.*
29	Tu	W. E. Gladstone born, 1809.
30	W	Av. mean temp. at Chiswick, 39·1°.
31	Th	Horse and Dog Licenses expire. Sun rises 8h. 8m.; sets 3h. 59m.

THE GARDENERS' CHRONICLE

("THE TIMES OF HORTICULTURE")

A Weekly Illustrated Journal

(ESTABLISHED 1841)

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THE
Gardeners' Chronicle

No. 837.—SATURDAY, JANUARY 10, 1903.

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ROUSDON.

ABOUT midway between Lyme Regis and Seaton, and consequently on the borders of the two counties of Dorset and Devon, stands, close to the coast, on the top of a cliff some 500 feet above the sea, the estate known as Rousdon, the seat of Sir Wilfrid Peek. The estate forms a distinct parish of the same name, but variously spelt—Rousdon, Roosdown, or Rosedown. It contains about 254 acres, and in 1871 had a population of only sixteen, which in 1886 had increased to forty-four. I was unable at the time of my visit to obtain the return of the last census, but considering that the parish and the estate are practically one and the same, the population since the acquisition of the property by Sir Henry Peek cannot be a very fluctuating one. Rousdon is said to be one of the smallest, if not the smallest parish in England, having its own rector—the first rector of Rousdon dating from 1279. The value of the living was given in the King's Books at £2 10s., but prior to the advent of Sir H. W. Peek, and the erection by him of the new church, the advowson was a sinecure, no services having been held in the old church for many years. It is recorded, indeed, that the building had been degraded to the use of a farm-cellar and outhouse. It is unfortunate, however, that there is no trace of the old building left, which was it is stated, in the perpendicular style of architecture. The style of the new church has been described as a combination of Franco-Norman, Early English and Decorated, and the value of the living has been brought up to £303 with house. It is difficult to conceive a more compact estate, for here is not only dwelling-house, but church, parish-schools, a museum and observatory, in fact, a whole parish, which is adjoined to that of Axmouth, situated as its name indicates at the mouth of the river Axe, which, rising at Chiddington, near Crewkerne, winds its tortuous way, forming loops and double loops through the valley around Axminster, till it enters the sea at Axmouth, covering a distance of about 23 miles in a direct line, but extending to 50 miles by its winding course.

Rousdon was purchased by Sir Henry Peek in 1871, and the mansion was commenced about that time and completed in 1883, costing, it is said, some £70,000. It is in the Elizabethan style (fig. 8), and whether looked at from the land or sea-front, has a decidedly imposing appearance. It is built of grey flint with Purbeck stone dressings The south front is about 200 feet in length, at the north-east angle is a tower about 90 feet high; from the south front there is an unlimited sea view, and also an extensive view of the coast line of Dorset and Devon from Portland Bill on the east to Start Point on the west, presenting some of the finest coast scenery in England, and showing the chalk formation of Portland and the dark red cliffs of Budleigh Salterton, Exmouth, and Dawlish. Almost contiguous to Rousdon is one of the most romantic "bits" of scenery on the coast, known as the Landslip, which consists of a portion of the cliff about a mile long, from seventy to eighty yards wide, and from 100 to 200 feet in depth. This enormous mass of cliff separated from the mainland on Christmas-day, 1839. It is now covered with a luxuriant growth of vegetation, and forms a really wild bit of country.

Returning to a further consideration of the mansion for the purpose of showing the wide scope of Sir Henry Peek's plans, it may be stated that the interior decorations are of a sumptuous nature. The banquetting-hall is of great richness and beauty, the windows are filled with coloured glass representing historical portraits and local historical events. This hall is said to have been the scene of many notable gatherings. The library faces east, and is filled with many thousands of valuable works. The museum collection, which occupies one of the largest rooms in the mansion, is of a very varied character, consisting of fine examples of Chinese and Japanese art workmanship, weapons from the Pacific Islands as well as from eastern and central Africa; besides which there is a fine collection of British birds, said to be one of the most complete in England—indeed it is stated that out of the list of British birds enumerated by the British Ornithologists' Union, five only are not represented in this collection.

Another branch of science, and that an important one, which receives a considerable amount of attention at Rousdon, is that which is carried on in the well equipped Observatory. This building "stands upon a plateau, at an elevation of 516 feet above mean sea-level, and about a quarter of a mile back from the cliff. To the south there is an uninterrupted horizon over the English Channel; to the west and north-west are the distant hills of Devon; and to the east and south-east are the distant Stonebarrow Hills, Golden Cap, and the high land of Portland. No better position could be found for astronomical observations. The situation is, however, much exposed, and as the building encounters the full force of the south and south-westerly gales which sweep the Channel, it was necessary that it should be of a substantial character, a condition which is met by a construction of teak-timber framing, filled in with cement concrete between the timbers, and resting on a base of stone with flint facing."

The observations made at the observatory, which is classified as a Second Order Station of the Royal Meteorological Society, are regularly transmitted to, and published in the returns of the Society. Eighteen annual volumes of observations have been published, first, under the superintendence of the late Sir Cuthbert E. Peek, F.R.Met.Soc., and since his death by the Hon. Lady Peek, who is also a Member of the Royal Meteorological Society. It is necessary to say that in this work they have been most ably assisted by Mr. C. Grover, who is in charge of the Observatory, and to whom I am indebted for much of the information already given, as well as for the photographs.

Altogether, Rousdon is an ideal modern estate, and as such its founder has had all the most recent appliances introduced for the comfort and advantage of the residents. Thus, on entering the garden department, over which I was most courteously conducted by Mr. W. E. Bailey, the head gardener, I was shown the bothies, where sleeping accommodation is provided for five men in separate cubicles, dining-room, kitchen, and a room set apart as a hospital; also a good lofty and spacious reading-room, well stocked with books in general literature, together with newspapers. The whole of the fittings of this building are of stained and varnished Pine. The same conditions of space, airiness, cleanliness, and good repair were shown in all the potting and packing sheds, as well as in the conservatory and other glasshouses and frames. It is possible that some of the houses may not be up-to-date as to the most recent requirements for perfect culture, but everything has been well carried out, and kept in good order and condition. The same may be said of the plants themselves, for though nothing is grown of a special character, and flowers and fruit are cultivated only for the supply of those on the estate, all the contents of the glasshouses and grounds appear to have an equal share of attention. Gloxinias and Begonias, both single and double, were at the time of my visit at the beginning of August making a fine show. The plants, not being crowded as is too often seen, were, so to speak, individualised, so that the shape and growth of each showed compactness, uniformity, and health. The same may be said of a group of Kalanchoe flammea which, I was informed, had been in flower for a period of six weeks. A group

of red and yellow Celosias were prettily arranged, and produced a striking effect. In the Camellia-house, which is a spacious building, I was struck with the numerous pendent baskets filled with a luxurious growth of the beautiful Asparagus Sprengeri. Nor does the floral or decorative side of the garden seem to occupy Mr. Bailey's whole attention; Melons, Grapes, and the usual fruits are grown with equal success, though he told me that Apricots do not succeed at Rousdon.

In this part of Devon the Bay Laurel thrives as a hedge plant more or less in many gardens, but the finest one I have seen is that along one side of the kitchen garden at Rousdon — a thick, compact, healthy green hedge between 4 and 5 feet high, and 300 feet long. Nor is this the only hedge worth noting, for in another part of the gardens is one equally well grown of about the same height, and of great length, entirely of Escallonia macrantha, which was beautifully in flower at the time of my visit; and still again another hedge, of Cotoneaster microphylla, which droops over a 4-feet wall on to the main road on each side of the lodge gates. The garden also possesses two pergolas: one of these, about 500 feet long, is chiefly covered with Cotoneaster Nummularia, which was intended to be used entirely, but the plant, it is said, was found to have an injurious effect upon the men engaged in cutting it. The second pergola is covered with trained fruit-trees.

In concluding the notice of this interesting place, it should be stated that included in the plan of Sir Henry Peek's scheme when laying out the estate, a school was erected for the children of the parish as well as model farm-buildings and houses for cottagers; further, each child attending the school is given half-a-pound of nutritious food at noon every day.

Besides those already mentioned as lending me much assistance on the occasion of my visit, I have to thank the Hon. Lady Peek for courteously giving me permission to view the grounds. *John R. Jackson. Claremont, Lympstone, Devonshire.*

FIG. 8.—VIEW OF ROUSDON. (SEE P. 17.)

NEW OR NOTEWORTHY PLANTS.

BURLINGTONIA PERPUSILLA, *Kränzlin.**

THIS singular little Orchid belongs undoubtedly, by the form and structure of the column, to the genus Burlingtonia; the other parts of the flower, reduced to minimum dimensions as they are, do not contradict their systematical position. Burlingtonias, generally speaking, do not range among the "great Orchids," the best of them being medium-sized, but making a tolerable effect when arranged a dozen bulbs or more in a pot. The little plant now in question seems to have a very clear conscience of its smallness, and forms dense tufts in the way of the smaller Masdevallias, as the only chance of not being overlooked. Nevertheless, a Burlingtonia scarcely 1 inch in height is very difficult to be seen, and this is why the plant has been overlooked for so long, even in the neighbourhood of Campinas, a well-known Coffee-producing place. The plant flowered at the beginning of November in the Botanical Garden at Darmstadt. I received from Mr. Purpus, inspector of the garden, several Brazilian Orchids, all collected at the same place, and all well known since many years, except this little thing. *Dr. F. Kränzlin, Berlin.*

RHIPSALIS GRACILIS, *N. E. Brown (n. sp.).*

This species has probably been in cultivation for several years, as it is the plant which is erroneously figured and described by K. Schumann

* *Burlingtonia perpusilla, Kränzl., n sp.*—Planta pusilla dense cæspitifica, foliis infrabulbosis brevi-articulatis, lamina ut illa bulborum terete subulata; bulbis brevi-ovoideis vivis profunde rugosis ad 5 mm. (4 lines) longis, 3 mm. (2 lines) crassis, læte viridibus, foliis infrabulbosis 2 cm. (10 lines) longis, 1—1 5 mm crassis, densissime purpureo-adspersis, racemis ex axilla cataphylli scariosi albidi orientibus pauciforis (3—4), rhachi fractiflexa; bracteis minutis; sepalo dorsali petalisque subsimilibus oblongis acutiusculis, sepalis lateralibus sublatioribus oblongis apice obtusis basi excavatis mentulum formantibus; labello simplice ligulato antice triangulo acuto; gynostemio brevi, brachiis quam ipsum longioribus protensis acutis; anthera 1-loculari longe producta antice retusa, polliniis 2 parvis, caudicula longa filiformi, glandula angusta, rostello longo ornithorhyncho. Flores minuti albi roseo-suffusi et minutissime punctulati, omnes partes vix 4 mm (2 5 lines) longæ—Brazil, Sta Caterina, near Campinas.

as R. penduliflora, and is probably known by that name on the continent, although totally different from that species; and as I cannot discover that it has been published under any other name, I describe it as new. Two nice plants of it (which differ slightly in habit, one being more compact than the other) have been presented by Mr. Justus Corderoy, of Blewbury, Didcot, to the Royal Gardens, Kew, where they have been in flower for some time past.

Main stems with internodes 3 to 11 inches long, 1⅓ to 1⅔ lin. thick, and main branches 1 to 4½ ins. long, ⅔ lin. thick, terete, smooth, glabrous. Ultimate branchlets very slender, pendulous, ¾ to 1 inch long, between ½ and ⅔ lin. thick, terete, not thickened towards the ends, light green, smooth, with a few minute scattered white scales ⅛ lin. long, and about ⅓ lin. broad, transversely oblong, subtruncate or with a very minute apiculus, often with one bristle-like hair ⅓ to ½ lin. long in their axils, and sometimes also a few very minute woolly hairs. Flowers one or two to a branchlet, terminal or lateral a little below the apex. Ovary 1 lin. long, subglobose, smooth, light green, glabrous, not immersed. Perianth-segments six, unequal, ¾ to 2 lin. long, ⅔ to 1 lin. broad, oblong, obtuse, recurved-spreading, whitish, semi-transparent. Stamens about thirty, erectly spreading, 1¼ to 1½ lin. long, whitish. Style about 1½ lin. long, whitish; stigma three-lobed; lobes ovate, acute. *R. penduliflora*, K. Schum., in *Fl. Bras.*, vol. iv., pt. 2, p. 276; and *Monog. Cact.*, p. 628; not of N. E. Br. *N. E. Brown.*

ORCHID NOTES AND GLEANINGS.

MAXILLARIA PUNCTATA.

A PRETTY variety of this floriferous and fragrant-flowered Orchid is in bloom in the garden of Ludwig Mond, Esq., The Poplars, Avenue Road, Regent's Park, the densely set flowers on short stalks almost concealing the pseudo-bulbs from the bases of which they rise. There is great variation in size, and in the density of the spotting of the flowers of this species, some of the larger forms being nearly equal in size to those of M. picta. The flowers, of cream-white to pale yellow tints, have small purple spots on the segments. Mr. J. O. Clarke, the gardener at The Poplars, attributes the great profusion of flowers on this plant, and the regularity with which they are produced, to the fact that he grows it in a basket suspended near the glass of the roof in a cool intermediate-house. Generally the species is grown in pots.

SOPHRO-LÆLIA × PSYCHE.

An inflorescence of this brilliantly coloured hybrid between Sophronitis grandiflora and Lælia cinnabarina is sent by Messrs. Charlesworth & Co., of Heaton, Bradford, the raisers, who state that the plant is a very satisfactory grower and profuse bloomer. The flowers are of that brilliant dark scarlet seen in the best forms of Sophronitis grandiflora, and the form of the flower more nearly approaches Lælia cinnabarina, on which in every respect it is a great improvement. Messrs. Charlesworth state that they have never had an unsatisfactory cross with Sophronitis grandiflora, some of the crosses with it, such as Sophro-Lælia × heatonensis, being their most brilliant autumn and winter flowers.

BULBOPHYLLUM CAREYANUM.

A pretty variety of this Burmese Orchid is sent by Mr. J. W. Moore, Cragg Royd Nurseries, Rawdon, near Leeds. The species, as formerly known, varied much in colour, ranging from yellow spotted with red to greenish-brown; but a small lot sent by Mr. Moore's late brother, who was instrumental in introducing so many good Indian Orchids, bore densely set cylindrical, elongated spikes of white flowers, tinged and speckled with rose colour. The variety now sent is the best in colour of this rose-tinted type, and a much more worthy plant for garden purposes than the older and duller-coloured form; it is a very free grower, and would thrive suspended in a warm conservatory.

ONCIDIUM GARDNERI AND ALLIES.

These handsome Brazilian Oncidiums, chiefly from the Organ Mountains, were at one time considered difficult plants to grow, until it was found that suspended in a cool intermediate-house they do remarkably well. Until the last few years they used to be rare in gardens, but on their durable flowers being found excellent for florist's purposes, importers turned their attention to them again. In the nursery at Southgate of Messrs. Stanley, Ashton & Co., the largest importers of these Brazilian Oncids, there is nearly always a quantity of them in flower. Even in this dull season there is a good show of the fine, fragrant, brown and yellow blooms. O. Gardneri (fig. 9), and its ally O. curtum, are among the best, although the flowers of O. crispum, O. Forbesii, and O.

FIG. 9.—ONCIDIUM GARDNERI.

prætextum, are larger. Their Brazilian collector has also sent a large lot of reputed hybrids of the O. × Mantini and O. calophyllum class. There are also large numbers of the clear yellow O. concolor.

LÆLIA × AUTUMNALIS CINNABARINA.

A flower of a singular hybrid between Lælia cinnabarina and L. autumnalis is sent by Eustace F. Clark, Esq., Teignmouth, after whose son it is named. At first sight it might be taken for a rather small L. autumnalis, with all the segments narrower than usual, the colour, unless closely examined, being also similar to that species. The sepals and petals are rosy-lilac, with a very faint tinge of copper colour. The side lobes of the lip are yellowish-white tipped with rose, and with several purplish lines at the base; the disc chrome-yellow, and the ovate front lobe rose-purple. Although the evidence of L. cinnabarina is not so clear as might be expected, there are traces of it in the wavy-edged front lobe of the lip, the deeply cleft side lobes, and in the coppery shade over the other segments, the copper tint deepening as the flower decays until the lilac tint is lost. This assertion of an almost obliterated agent in a hybrid may often be found by watching the change in the flower as it fades. The pseudo-bulbs are said to be longer than those of L. autumnalis. It is illustrated in a recent issue of *Iconographique des Orchidées*. *J. O'B.*

NOVELTIES OF 1902.

(*Concluded from p.* 3.)

STOVE AND GREENHOUSE PLANTS.—The novelties in this class consist chiefly in improvements in favourite decorative plants rather than in really new introductions.

Messrs. Jas. Veitch & Sons, of Chelsea, as in former years, have made great improvements in winter-flowering Begonias, Gloxinia-flowered Streptocarpus, greenhouse Rhododendrons, showy Phyllocacti, and other flowers, especially their fine strain of Hippeastrums, several of which have received certificates during the year, the best being Sylvanus, Nysa, Mrs. Bilney, Queen Alexandra, and General Buller.

In Hippeastrums too, Captain Holford, C.I.E., of Westonbirt (gr., Mr. A. Chapman), showed many fine varieties; and this ornate class of flowers is being worked by several other growers.

Messrs. Sander & Sons, of St. Albans, had produced a number of new plants during the year, a fine selection of them being shown in their remarkable group at Holland House. Those specially noted were Helicenia Edwardus Rex, with large entire leaves of metallic copper colour, with polished red mid-ribs, the older leaves passing to olive-green; Dracæna Alexandræ, a stately plant of the D. Massangeana class, but with narrower and more recurved leaves, green, striped with cream-yellow; Ficus pandurata, of the habit of the useful "India-rubber plant," but with broadly pandurate dark green leaves; Alocasia Alexandra Regina, a hybrid raised by Messrs. Sander out of A. Sanderiana, and a really distinct and strikingly handsome novelty; and Alocasia Sandersoni albescens, a showy plant, the spathes of which are nearly white.

Mr. William Bull of Chelsea, showed the new Epiphyllum delicatum, Hydrangea Hortensia nivalis, and other novelties, and most of the other firms produced good novelties, the greater part of which are enumerated in the appended list of new and rare plants illustrated in the *Gardeners' Chronicle* in 1902.

HARDY PLANTS.

The good varieties and novelties in Roses, were fully enumerated in the articles in the *Gardeners' Chronicle*, Dec. 6 and Dec. 20, 1902, and Chrysanthemums and other florists flowers have been recently dealt with in like manner; there remains therefore but to set forth some of the best incidental introductions of the year.

Messrs. Jas. Veitch & Sons are getting good results from their introductions from China, and some of the best plants of the year are among them. Good introductions of Messrs. Veitch are Astilbe chinensis Davidi, Moschosma riparium, Senecio clivorum, Libocedrus macrolepis, Primula imperialis, Corydalis thalictrifolia; and among other good novelties shown, Narcissus Mrs. H. J. Veitch, a monster Golden Ajax, and other new varieties. Narcissi secured many awards at the hands of the Narcissus Committee, chiefly to varieties of these charming flowers shown by Miss Willmott, the Rev. G. H. Engleheart, Messrs. Barr, and Messrs. Veitch. Some Tulips also received recognition, and among pretty dwarf Iris, Miss Willmott received awards for Iris Warleyensis, and I. bucharica, and also for the new Fritillaria askhabadensis.

NYMPHÆAS

increase in favour, and the coloured and hybrid Water-Lilies now form fine features in many gardens. The earlier rose-coloured and crimson forms were so good that it is difficult to get novelties which are improvements on them. Shades of blue and purple have been the colours aimed at, and the Nymphæa (stellata) "W. Stone," violet coloured with yellow centre, for which Mr. Jas. Hudson, gr. to Leopold de Rothschild, Gunnersbury House, Acton, secured a First-class

Certificate at the Temple Show, and his Nymphæa "Mrs. Ward," a rosy-purple, which also secured an award, are very fine new departures.

ASTERS

of the "Michaelmas Daisy" class are now receiving much attention, and the Floral Committee selected eight from those on trial at Chiswick for awards, chiefly to Mr. Beckett, and Miss Willmott, on September 24; and other varieties have come into prominence.

DAHLIAS

supplied many novelties, chiefly in the "Cactus" class.

Mr. Jas. Douglas and others secured Awards for new Carnations, Auriculas, &c., and Messrs. Kelway, Cannell, Turner, H. J. Jones, and other

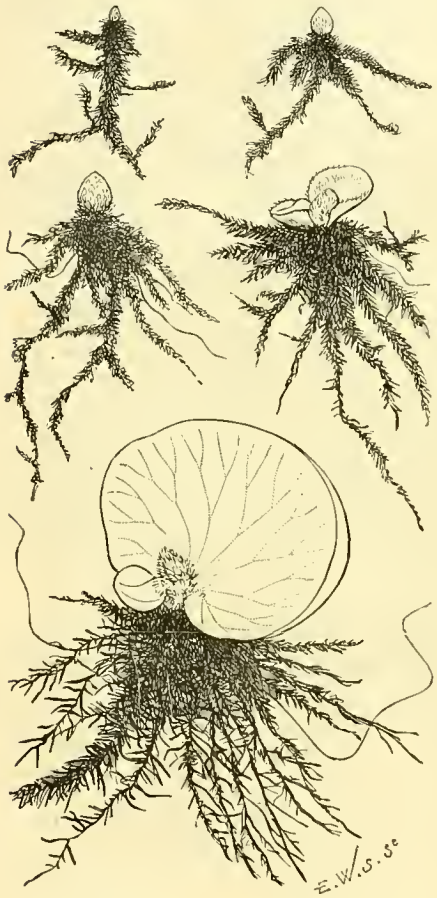


FIG. 10.—PRODUCTION OF BUDS ON ROOTS OF PLATYCERIUM (*W. Watson*). (SEE P. 21.)

great florists, have done good work in the production of novelties. Perhaps the most useful of all are the numerous novelties in flowers to be obtained from seeds. Messrs. Sutton of Reading, Messrs. Jas. Veitch & Sons, Messrs. Carter, and a few other large firms, exercised wonderful skill and patience in selecting and perfecting the strains of the very large number of florist's flowers they grow, and last year there was a good proportion of novelties in all the large classes.

Bulbous plants are specialties of Messrs. Wallace of Colchester, famous for their Lily and Calochortus culture. Iris Sofrana magnifica, Freesia aurea, Henchera brizoides gracillima, and others have been Certificated to them.

The following new or rare plants were illustrated in the *Gardeners' Chronicle* in 1902—

Acanthus arboreus, April 5, p. 222.
Anthurium seedlings, June 14, p. 395.
Apple "Norfolk Beauty," December 20, p. 453.
Apple "The Houblon," January 4, p. 11.
Archontophœnix Alexandræ, Jan. 11, p. 19.
Aristolochia pontica, May 24, p. 335.
Aster Novi-Belgii floribunda, Oct. 11, p. 258.
Aster Novi-Belgii Perle Lyonnaise, Oct. 11, p. 259.
Aster Shortii, October 11, p. 269.
Astilbe chinensis Davidi, August 9, p. 103.
Banana, "The Ribu-Ribu," Dec. 27, p. 471.
Begonia Buisson Rose, March 29, p. 204.
Begonia crested, November 29, p. 395.

FIG. 11.—PLATYCERIUM WILLINCKII.
Showing the erect, sterile fronds and the pendulous fertile fronds with spore-cases, &c. (see p. 24

Begonia Perle Lorraine, March 29, p. 205.
Calochortus, six species and varieties, Supp., February 16.
Celmisia coriacea, September 13, p. 191.
Cereus dasyacanthus, October 4, p. 252.
Cereus Houlleti, October 4, p. 253.
Cereus senilis, July 19, p. 35.
Chimaphila maculata, November 1, p. 318.
Chrysanthemum indicum, wild form, May 10, p. 302.
Chrysanthemum morifolium, wild form, May 10, p. 302.
Chrysanthemum Nellie Pockett, November 8, p. 334.
Cineraria cruenta, and florist's var., May 10, p. 305.
Citrus medica digitata (Buddha's Fingers), August 2, p. 71.
Clematis aristata, July 26, p. 55.
Clematis florida, July 26, p. 51.
Convallaria majalis prolificans, Aug. 23, p. 133.
Corydalis thalictrifolia, Supplement, Oct. 18, and p. 289.
Cotoneaster horizontalis, August 9, p. 91.
Crab, the Langley, December 13, p. 435.
Crocus Scharojani, November 1, p. 321.
Dædalacanthus parvus, October 25, p. 311.
Dahlia President Viger, September 13, p. 190.
Dermatobotrys Saundersii, February 22, p. 131.
Drymophlæus Normanbyi, January 11, p. 21.
Echinocacti and Melocacti, July 19, p. 34.
Epiphyllum delicatum, December 6, p. 411.
Erica propendens, October 18, pp. 278, 279.
Exacum Forbesii, February 8, p. 93.
Exogonium purga, November 1, p. 319.
Fritillaria askhabadensis, April 12, p. 238.
Hæmanthus imperialis (Linden), Feb. 8, p. 99.
Helichrysum Guilielmi var. Meyeri, Jan. 4, p. 2.

Helichrysum Volkensii, March 15, p. 170.
Hydrangea Hortensia nivalis, Dec. 20, p. 455.
Iris bucharica, June 14, p. 387.
Iris Leichtlini, October 4, p. 242.
Iris Warleyensis, June 14, p. 386.
Latania aurea, Supplement, March 1.
Layia (Tridax) Gaillardioides, July 26, p. 61.
Lindenbergia grandiflora, September 20, p. 213.
Livistona Muelleri, December 13, p. 431.
Lycoris Sprengeri, Supplement, December 27.
Meliosma myriantha, January 11, p. 31.
Moschosma riparium, February 22, p. 122.
Musa Wilsoni, December 20, p. 451.
Primula sinensis, wild form, cultivated, April 26, p. 271.
Primula viscosa Spring Beauty, May 3, p. 297.
Pteris aquilina varieties, Sept. 27, p. 227.
Raspberry November Abundance (Veitch), Nov. 22, p. 375.
Rodgersia pinnata, August 23, p. 131.
Rosa Banksiæ, wild form, June 28, p. 439.
Rosa indica, wild form, June 28, p. 438.
Rose Auguste Barbier, July 5, p. 9.
Rose Frau Karl Druschki, Dec. 6, p. 421.
Rose Lady Roberts, July 5, p. 2.
Rose Mrs. Oliver Ames, July 5, p. 3.

CHINESE MAPLES.

The Maples of Central China are a good example of the extraordinary richness of the flora of that region. During an excursion which I made in 1898 in the mountains of Hupeh, I found sixteen species of Acer, of which nine turned out to be new species. On this trip I also discovered Dipteronia, a new genus, which differs from Acer in having the fruit winged all round, and in having leaves which are pinnate with many pinnæ. Recently I have been looking through a bundle of specimens of Maples brought home by Mr. E. H. Wilson from Hupeh, and I find that he has obtained several species which escaped my notice. In Yunnan, 10° to the south, a second species of Dipteronia has turned up. In the highly mountainous and unexplored provinces of Kweichow, Hunan, and Kwangsi, lying somewhat between my two collecting points, Ichang and Mengtsz, I expect numerous additional species of Maple and Dipteronia to occur.

As many of these Maples are now in cultivation at Coombe Wood, some remarks concerning them will be timely. But first with regard to Dipte-

Fig. 12.—Platycerium grande. (see p. 24.)

Narcissus Margaritæ "Iolanda," Mar. 15, p. 172.
Narcissus Peter Barr, May 3, p. 295.
Narcissus Sprengeri elmensis, March 15, p. 173.
Narcissus Sprengeri vomerensis, March 15, p. 173.
Passiflora actinia, July 12, p. 15.
Passiflora ambigua, March 15, p. 171.
Passiflora maculifolia, Mast., Supp., Nov. 8.
Pinanga Kuhlii, Supplement, Feb. 8.
Pinus Laricio Heldreichi, cone of, May 10, p. 304.
Pinus Laricio var. pindica, May 10, p. 304.
Podocarpus chilina, Supplement, Feb. 15.
Podocarpus nubigena, with male catkins, Feb. 15, p. 114.
Primula sinensis, wild form, April 26, p. 270.
Rose René André, October 18, p. 283.
Scolopendrium vulgare Drummondiæ superbum, January 4, p. 5.
Senecio clivorum, Supplement, September 20.
Shortia uniflora, May 24, p. 337.
Sparaxis Fire King, July 5, p. 8.
Stapelia bella, March 1, p. 138.
Streptocarpus multiflora, November 1, p. 327.
Trichinium Manglesii, September 6, p. 181.
Tulipa ingens, July 12, p. 14.
Tulipa Micheliana, May 31, p. 353.
Tulipa nitida Gesneriana var., May 31, p. 151.
Typhonium giganteum Giraldi, August 30, p. 151.
Viburnum Carlesii, October 11, p. 261.
Washingtonia filifera, January 18, p. 39.

ronia, there is no doubt of its close affinity to Acer; and Pax, the latest monographer, confines the tribe or sub-order Aceraceæ to these two genera, out of which has been thrown the curious Himalayan Dobinea. This genus has been transferred to Anacardiaceæ. The American Negundo, with three species, is now reduced to Acer; it differs in floral structure from the Asiatic trifoliolate Maples; and it is only in a popular sense that the name Negundo can be applied loosely to all Maples with tri-foliolate or pinnate leaves.

DIPTERONIA.

This genus includes two species. They are trees with opposite imparipinnate leaves, serrate in margin. The flowers are polygamous, and disposed in terminal panicles. The fruit consists of two carpels, diverging and connate at the base, each being surrounded by a membranous wing all round. In each carpel there is a solitary exalbuminous seed.

1. *Dipteronia sinensis*, Oliver.—A tree of central China, now in cultivation in Coombe Wood. It occurs in Hupeh mountain forests at considerable elevations, and will be hardy in this country. The leaves have four to seven pairs of lanceolate or ovate-lanceolate leaflets, which are petiolulate or subsessile; and they are sharply serrate. Each fruiting carpel is obliquely obovate, about an inch long by ¾ inch broad. The leaves and inflorescence are glabrous; occasionally, however, the leaves have a slight pilose pubescence.

2. *Dipteronia Dyerana*, Henry (*nov. sp.*).—This was found, only once, in the forests east of Mengtsz in Yunnan, at about 7,000 feet elevation, occurring as a small tree 10 feet high. It possibly attains much larger dimensions, as in China many trees which grow to a great size, flower at an early period. The flowers are unknown. It is easily distinguished from the last species by its pubescent leaves and inflorescence, and its very large fruit.

The following description is drawn up from my specimen, No. 11,352, in the Kew Herbarium: A small tree, 10 feet high. Leaves opposite, imparipinnate, with six or seven pairs of pinnæ, about a foot long, including a petiole of 4 inches long. The leaflets are opposite, subsessile, ovate-lanceolate, from an oblique base, and terminating in a long acuminate apex; the margin has a few distant sharp serrations. The petiole; also the mid-rib and veins of the underside of the leaflets, are beset with a dense brown pubescence; on the upper surface the veins are slightly pubescent. The inflorescence is a broad terminal panicle, covered with a dense brown short pubescence. The fruit, that of the genus, consists of two divergent carpels, connate at the base, the solitary seed being imbedded in each carpel in the centre of a membranous orbicular wing. The carpels are each about 2½ inches broad by 2 inches long. The seed is ½ inch wide and ⅜ inch long, and is reniform in section with a cordate base.

I associate this interesting plant with the name of the Director of Kew, whose help and encouragement to me during many years have been constant and invigorating. *Augustine Henry.*

(To be continued.)

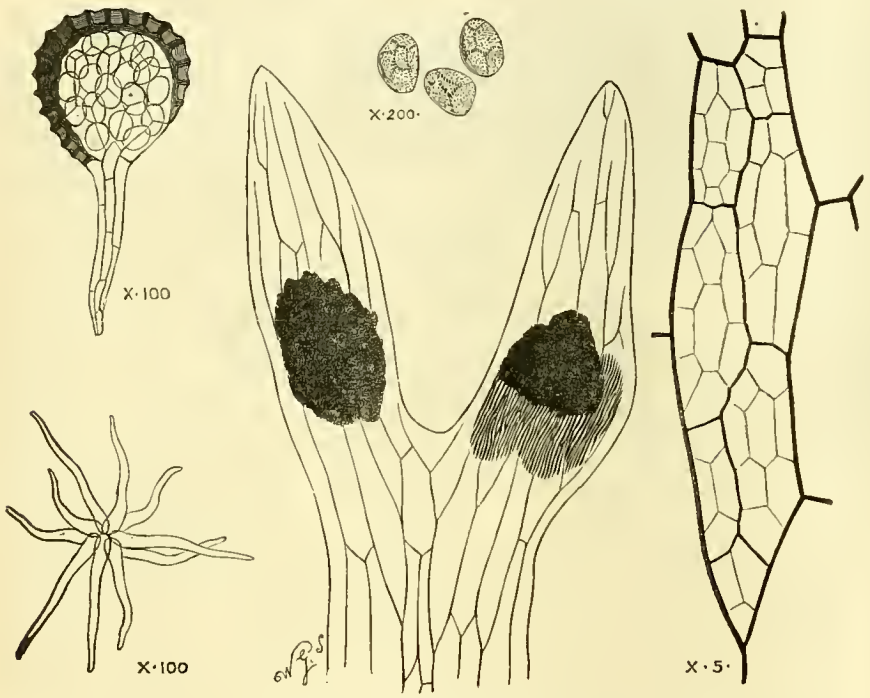


FIG. 13.—PLATYCERIUM HILLII.

Showing portion of fertile frond with sori; sporc-cases, spores, stellate hairs, &c. (See p. 24)

The Week's Work.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Cleansing of the Houses and Plants.—The present month affords a suitable time for cleansing the plants and houses in every part, and the various operations should be pushed on with vigour. In smoky parts of the country and the suburbs of big towns, the deposit of greasy blacks on the roofs and sides of the houses should be removed by washing, and the interiors washed with soap-suds and petroleum. Clear away all rubbish from beneath the stages, which if allowed to remain forms hiding-places for cockroaches, woodlice, ants, &c. After the cleansing of the walls, glass, and wood-work is finished, that of the pots and pans should be undertaken; and finally the plants may be freed from scale and mealy-bug. For destroying the latter, apply methylated spirits with a soft camel's-hair pencil a few hours before the plants are washed with warm water and a piece of sponge. There are many insecticides on the market that are perfectly safe to use on plants, if care be taken not to use them of so great a strength as the directions given with them advise. Brown and white scale infest Lælias and Cattleyas, concealing themselves under the outer sheathing of the pseudo-bulbs. In cases of bad infestation this sheathing must be stripped off, and methylated spirits applied to the scale insects. When the plants are staged anew, let them be so arranged that each obtains its due share of sunlight as far as is practicable. Thrips in some gardens give much trouble during the winter months, but frequent vaporising with XL-All will lessen their numbers considerably; and ants cause a lot of harm by carrying insects—mealy-bug, black scale, &c., from place to place as food. Here we are troubled very much with ants; the best remedy that has come under my notice so far is Vall's Beetle-traps, an article obtainable at most chemists. This is likewise one of the finest means for eradicating cockroaches and wood-lice from Orchid-houses.

The Resting of Orchids.—Many of the plants are now at rest more or less, and as a consequence no plant is in need of much moisture; nevertheless, any excessive drying of the materials should be avoided. The gardener should make an inspection of the potting materials, condition and number of the roots, the size of pots, &c., how much water may be afforded, so as to keep the pseudo-bulbs plump and the roots healthy. Avoid the practice of applying water to the surface, but leaving the roots at the bottom of the pot in a perfectly dry condition, a state of things that is responsible for the loss of many of the roots. In the case of a healthy plant possessing plenty of foliage, and many roots becoming dry, the better practice is to plunge the pot up to the rim in a vessel of tepid water. This is, however, inadvisable if a plant is potted in leaves, with only one crock for drainage, as it might cause the death of the plant; but plants with many roots which are afforded ample drainage materials will take a fair supply of water during the resting season to keep them healthy.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

The Mushroom House.—Collect fresh horse-dung and short litter from the stables for the making of a new bed, spreading these in an open shed, cart-house, &c., in the form of a flat heap about a foot thick, and allow the mass to ferment and get rid of the more rank ammonia, hastening the process by turning it once in two days. When sufficiently sweetened, if the manure is somewhat wet, add one barrow-load of dry loam to every five or six of the manure, when constructing the Mushroom-bed, thoroughly mixing the two together. A Mushroom-bed may be 1¼ to 1½ feet in depth, the materials being beaten together firmly with a spade or mallet as the work proceeds. Having made the bed of the required size, let it alone till the warmth has gone down to 80° as tested with a bottom-heat thermometer, and a this degree of warmth the bed may be spawned. Break up the bricks of spawn into pieces 1½ inch square, and insert these in shallow holes made at intervals of 8 inches apart, and cover with a handful of the materials. Place a thin covering of long litter on the bed, and leave it for one week, when it may be covered with adhesive sifted loam to the depth of 1½ inch, making it firm and smooth, and replace the litter. The soil should be warmed before it is applied. The temperature of the house may range from 55° to 60°, and the air kept moist by damping the walls and paths with tepid water.

Potatos for very early forcing may be grown in pots; medium sized sets being selected of such varieties as Sutton's May Queen, Sharpe's Victor, or Veitch's Early Ashleaf. After the eyes or buds have grown to about an inch in length, they are ready for planting. A useful pot is one of 10 or 12 inches in diameter, these being readily portable. A light compost should be used, preferably one consisting of loam one part, leaf-soil two parts, and spent-bed Mushroom materials one part, with a good sprinkling of wood-ashes. Let the pots have good drainage, and be half filled with soil pressed down firmly. Reduce the eyes to one, the strongest; and place three sets in each pot, putting the soil to three-quarters of the depth of the pots, which will leave space for a manurial mulch later on. Place

in a house or pit having a temperature of 50° to 55° by day, and a somewhat lower one by night; anything stronger than this at the start pushing the top-growth too much in advance of the roots, and if the stems get drawn or weakly, tubers do not readily form. Potatos planted last month in pots or mild hotbeds should be afforded all the sunlight possible, and kept close to the glass. Afford air more or less according to the state of the weather, and apply water sparingly; adding fresh soil when earthing becomes requisite, covering the glass at night when the weather is severe.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Chrysanthemums.—The middle of the present month is a good time to insert cuttings of these plants, choosing sturdy shoots growing at the base of the stock plants, discarding weakly shoots or those having flower-buds. The cuttings should be from 2½ to 3 inches in length, and be cut close under a joint, and be inserted singly in 2-inch pots, or four in a 3-inch pot, around the sides, which should be clean, and carefully crocked. The soil may consist of about equal parts of loam and leaf-soil, with a liberal addition of river or coarse silver-sand, with just a sprinkling of sand on the surface to work down with the dibber. Make the cuttings firm in the soil, and apply water with a fine rose can. In Devon, the cuttings may be rooted in cold frames, but a surer method to employ anywhere is to erect long, narrow propagating-boxes on the stage of a glasshouse having a temperature from 40° to 50°; cover the bottom with finely sifted coal-ashes, and cover with close-fitting sashes or large panes of glass, kept in place by a few tacks. No shading is necessary, but the glass must be kept clean, and the condensed moisture wiped off the glass every morning. Water will, as a rule, not be required till rooting takes place; but should any of the cuttings droop while the sun is on them, a light syringing will revive them. Four to six weeks generally will elapse before roots form, and when this is seen to be the case, the plants should be removed to other frames or hand-lights, where a small quantity of air can be admitted to them, the quantity being increased daily. In about ten days, stand the cutting-pots on shelves near the glass, but away from cold draughts.

Roses in Pots, &c.—Roses should be pruned a few weeks previously to putting them into a forcing-house, and the plants should have been established in pots for, at the least, one year, otherwise the blooms will be thin and few in number. Before forcing is begun, make the drainage secure, cleanse the pots, scrape off the surface-soil, and apply a top-dressing of loam, and a sprinkling of bone-meal, mixed well together, making it firm with a rammer. As regards pruning, H.P.'s require to be cut back somewhat hard, and always to a plump bud; while the Teas, Noisettes, and such-like, may merely require the weak wood to be removed, and the main shoots kept well apart when training the plants. Where no Rose-house exists, the pots may be brought into a peachery or vinery about to be started, and where a temperature of 45° to 50° can be afforded the plants for a few weeks, increasing it in about three weeks. Apply air freely in mild weather, afford the plants a light part of the house unshaded by other things, syringe once or more often daily as the case may require; and if aphides appear, apply weak tobacco-water, or Quassia extract, which is as good as any, and hunt for the Rose-maggot, found in the centre growths or curled leaves, which so soon destroy the flower-buds. The Roses which are fastened to the walls and rafters of a Rose-house or greenhouse should have their shoots thinned, and be afforded a top-dressing like that advised above for pot-Roses. Against mildew, employ flowers-of-sulphur, washing it off the foliage after twenty-four hours.

Brugmansias.—Those planted in beds or borders (where they succeed much better than in pots) will have been kept somewhat dry at the root for the last month or two, and may now be pruned hard back, and still be kept dry at the root for another month. Plants grown in tubs and pots may be pruned, and kept dry at the roots, and cool for the present.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq. Dropmore, Maidenhead.

Raspberries.—In mild weather get the canes thinned if no thinning was performed last June, and secure the remainder to two or three wires strained horizontally to wooden posts or iron standards; and if a row of planks be laid between the rows, the ground need not be trodden at this season whilst the work is being carried out. The canes should be kept at about 8 in. apart if laid in all over the trellis, and if strong well-ripened they may be left at about 5 ft. in length when the tying is finished. Afford a coating of spent hot-bed manure, and lightly prick it in near the stools, but deeply in the middle track of the alleys, or allow it to lie as mulch on the dug ground.

New plantations.—If the ground has been trenched, and plenty of manure applied at the bottom, a matter of importance, the plantation generally lasting for ten or twelve years, get the planting finished forthwith; and if wire trellis is going to be used, the ground should be marked out, the rows marked out at six feet apart. The posts for supporting the wire should then be put in their places, but the wires not being required till next season, these need not be used. The canes should be fifteen inches apart in the rows, and be cut back to about two feet from the base after planting, and mulching them, the canes being finally cut down to three inches from the ground towards the close of March. Good varieties for planting are Superlative (the best of all the red varieties), Baumforth's Seedling, Yellow Antwerp, Yellow Superlative, and Guinea.

Peaches and Nectarines.—The mild weather in the south is causing the buds on these fruit trees to develop, and the trees should immediately be loosened from the wall. Doing this will retard growth and enable the gardener to cleanse the wall, stop up holes, draw nails, &c. Not much pruning will be required if disbudding was well attended to last summer. If there is scale on the wood, make use of an insecticide, employing a syringe, and choosing a quiet day for the job. I do not consider that anything is gained by keeping the trees some distance from the wall, as do some gardeners, with the idea of retarding the buds, but I proceed with pruning, nailing, or tying forthwith. Lay in the main branches first, beginning at the bottom, letting them radiate regularly around the centre; then lay in the young shoots at about 4 in. apart, keeping a few shoots near the main branches so that the leaves may afford shade to these from the too ardent sun.

Miscellaneous.—Collect the prunings of all kinds of fruit trees and burn them forthwith. In frosty weather, wheel manure on to the fruit quarters, borders, &c.; and in wet weather cut and sort shreds, heat nails and studs, throwing them into oil, whilst still hot; cut and point stakes, saving much time later on.

FRUITS UNDER GLASS.

Strawberries.—Introduce batches for succession from heated pits where the plants have been started on a bed of tree-leaves to the Strawberry-house, or to shelves fixed up close to the roof-glass in an early forcing-house. Afford the plants weak liquid manure, and if they have been prepared as advised in previous calendars, they will throw up vigorous flower-trusses, the flowers of which should be fertilised daily. After the fruits are set, make a selection of six or eight of the best, removing the remainder.

Figs.—Those plants that are being grown in pots for affording early fruit, and which are plunged in a hotbed as advised in a previous Calendar, should now be afforded a temperature of 50° to 55° at night, and one of 10° to 15° higher by day, the lower temperatures ruling in very cold weather. Syringe the plants morning and afternoon, and in other ways maintain a moist atmosphere. The early house having been closed for the past week, a night temperature of 45° to 50°, and one of 10° higher during the day may be applied, treating the trees in the manner advised for Figs in pots. Succession trees which may have made gross, unfruitful growth, should be severely root-pruned; and if the roots have an unlimited run, enclose them in small enclosures formed of brick set in cement, so as to have the roots under proper control, it being an easy matter to apply manure when it is wanted. This method of confining the roots, results in short-jointed, fruitful wood. In pruning, thin out the branches, and train-in young shoots from the bottom of the trees, which will in time take the places of the thick, and often unfruitful branches towards the centre of the tree. Trees in pots or borders having most of the fruit-bearing wood at the top, may be cut down to points from which young branches are desired, these forming readily below the point of severance; and curtail the roots in proportion to the pruning of the top. Thoroughly cleanse the trees and houses, scrape off all loose soil from the borders, and lightly dig in a dressing of charred garden-refuse and bone-meal, afterwards dressing with good loam and mortar-rubble to the depth of 2 or 3 inches.

Tomatos.—Plants which have been growing in pots since last June or July, under cool conditions for the production of fruits, and may still be bearing a quantity of useful fruits, should be encouraged to ripen these fruits by affording a temperature of 55° to 60°, with plenty of air in mild weather, and a dry atmosphere. Most of the fruit will now be found at the tops of the plants, but if young, healthy shoots from the bottom are laid-in, a useful lot of fruit will be obtained during the early spring months. Remove entirely the old foliage as the young shoots extend. Sprinkle some fertiliser on the soil, pointing it in, or affording water, so as to carry the nutriment to the roots. Plants raised from seed last August, or from cuttings at about the same time, will, if grown under favourable conditions, produce quantities of fruit, and should receive the same kind of treatment as the older plants. Fertilise the open flowers daily by gently tapping the flower-clusters. Pinch out lateral growths, but do not remove any of the foliage except to expose the fruit to the sun's rays. Pot off seedlings as soon as they show a leaf beyond the cotyledons, making use of a compost consisting of equal parts of leaf-mould and good loam; afford a temperature of 60° to 65°, and set them upon a shelf near to the glass. Sow seeds in pans of light soil, and place in propagating-pit. Four good varieties are Frogmore Selected, Sutton's A1, Acquisition, and Ham Green Favourite. *T. H. C.*

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Pruning.—Climbing plants, if numerous, should be pruned and fastened to walls, trellises, and bowers, and it is very important that Clematis shall be dealt with early, so as to avoid the entanglement of the shoots that is sure to occur if this work be postponed. Each section of Clematis must be pruned according to its habit of growth, which should be well understood by the pruner. Those of the C. lanuginosa and C. florida types, together with most of the species, should have the number of shoots reduced, and those that are retained, lightly shortened. C. Jackmanni and C. viticella with their varieties may be cut down almost to the ground-level, more especially young plants that are getting established, and aged plants whose shoots may have become much entangled and the plant top heavy. Bignonia radicans may have the main shoots spurred-in like a Vine or Currant-bush; deciduous climbers may be dealt with in their turn, pruning much or little accordingly to the time of flowering and habit. Plants that flower on last year's wood should be pruned after flowering. Climbing Roses should be pruned in the spring. It is frequently necessary to remove some of the oldest and bare branches so as to make space for laying-in new shoots.

Lawns.—Ply the roller frequently, and where the grass is poor afford dressings of basic slag, 4 oz. to the square yard. Bone-meal, sifted wood-ashes, fresh soot, and organic manure well mixed together form a beneficial dressing.

Carnations.—After sharp frost, press the soil firmly around the plants in beds and borders, doing this gently with the hands only. Hardy herbaceous perennial plants newly planted should be examined, and if found to be lifted out of the soil by frost, the soil should be pressed firmly around them.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JAN. 13 { Roy. Hort. Soc. Coms. meeting. Hort. Club Dinner at the Hotel Windsor.

THURSDAY, JAN. 15 { Linnean Soc., Special General Meeting.

SALES FOR THE WEEK.

MONDAY and FRIDAY, JANUARY 12 and 16—
Hardy Herbaceous Plants and Bulbs, Perennials, Pinks, Carnations, Azaleas, Rhododendrons, and Dutch Bulbs, at 67 and 68, Cheapside, by Protheroe & Morris, at 12.

TUESDAY, JANUARY 13—
Palms, Bays, Roses, Lily of the Valley, &c., by Pollexfen & Co., at Pilgrim Street, Ludgate Hill, at 12.30.

WEDNESDAY, JANUARY 14—
Azaleas, Rhododendrons, Palms, Roses, Herbaceous Plants, Gladiolus, Perennials, and Dutch Bulbs, at 67 and 68, Cheapside, by Protheroe & Morris, at 12.—Palms and Bulbs, Fruit Trees, &c., at 12.30; Japanese Lilies, at 2.30, at Stevens' Rooms.

FRIDAY, JANUARY 16—
Orchids in great variety, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

TENDER.

Laying-Out Grounds, Clerk to the Board, Brentwood.
(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —36·6°.

ACTUAL TEMPERATURES:—
LONDON.—*January* 7 (6 P.M.): **Max.** 54°; **Min.** 41°. *January* 8 (11 A.M.).—Black fog; mild.
PROVINCES.—*January* 7 (6 P.M.): **Max.** 49°, Scilly; **Min.** 35°, N.E. Scotland.

Universal Exposition of St. Louis, 1904.

A DOCUMENT relating to the proposed exhibition at St. Louis in 1904, has reached us, a document full of interest even for those who are not likely to participate in the exhibition itself. The average Englishman knows little or nothing of the history of Louisiana, and would be puzzled if called on to indicate its extent and relation to the other States of the Union. In the pamphlet before us, a brief summary of the history is given showing how the vast territory of Louisiana which had been Spanish, became French, and was eventually sold a century ago by Napoleon to the United States, which thus obtained an area as large as the original territory of the United States as defined by the treaty of 1783. The subdivision of this province, extending over a million square miles, into some fourteen States, and their subsequent marvellous development and progress, is told in few words, but with all the more force and directness. A well-contrived map illustrates the text, and serves vividly to impress the leading facts on the mind. But it is not with historical summaries that we are concerned in these pages, nor even with the general details of the huge exhibition it is proposed to hold. Our concern lies almost exclusively with the products of the vegetable world, a sufficiently large subject.

Agriculture and forestry have naturally vast importance in these central States of the union. Fruit culture and horticulture generally must also assume enormous proportions among a population which has increased from over three millions in 1880, to fourteen and a half millions in 1900, or, at the rate of about seventy-nine per cent. in twenty years! These figures refer exclusively to the fourteen States carved out of the old Louisiana. But this area is wedged in between the Eastern and the Western States, and St. Louis is approximately in the centre of the States, and in direct communication by rail or river with the whole of the United States, east and west, north and south, with Mexico, and with Canada. These facts will give some idea of the numbers of producers and of consumers for whom this exhibition will cater, not to speak of foreign countries which, no doubt, will largely participate, whether as visitors or as exhibitors.

We extract from the pamphlet before us the following details relating to the subject which will most interest our readers :—

HORTICULTURE.

There will be a splendid conservatory for the reception of exotic and other decorative, ornamental, and useful plants, including those of the greatest size. This will constitute a portion of the home of horticulture, which is to cost 200,000 dollars, about £41,500. The frontage is arranged for 800 feet, and the depth will be 400 feet. The aim is to make in this palace of fruit, foliage, and flowers, a complete display of the gardening world. The exhibit is open to appliances and methods of pomology, viticulture, floriculture, and arboriculture; and in addition to tools of every description for gardeners and nurserymen, this includes greenhouses, aquariums, garden architecture, plans, models, pictures, and literature dealing with the subject.

VITICULTURE.

As to the Vine, it is such an important branch of horticulture, that the idea is to make viticulture a separate group. The section is open to types of buildings, implements, appliances, and tools, relating to the culture. A collection of Vines is another object in view. Methods of making and preserving of wine, and of dealing with diseases of Vines, are also open to illustration by exhibitors.

CHOICE FRUITS.

By artificial aids, rare fruits have become daily necessities, so that what was once a select trade, now belongs to the category of universal business. The schedule of the group permits the exhibit of pomaceous and stone fruits, i.e., Apples, Pears, Plums, Peaches; citrus fruits, as Oranges, Lemons, Limes; tropical and sub-tropical growths: Pineapples, Bananas, Mangos, Figs, Olives; and of Strawberries, Raspberries, Gooseberries, and Currants, classed as small fruits; Almonds, Hickory-nuts, Filberts, and Walnuts. For historical and decorative purposes, the schedule includes casts and models of fruits in wax and plaster.

TREES, SHRUBS, AND PLANTS.

As ornamental gardening has now become both a fashion and a necessity, arrangements have been made for a display of ornamental standard trees and shrubs, plants for the park or garden, herbaceous plants, such as Dahlias, Chrysanthemums, and mosses and baskets of flowers. Further, it is part of the plan to show the working results of forced culture, including specimens from as many different countries as possible, of forced vegetables and fruit, varieties of plants cultivated for ornamental purposes, plants for houses of moderate and extreme temperatures.

SEEDS AND YOUNG TREES.

Seeds and plants for gardens and nurseries are included, i.e., collections of vegetable seeds and young trees, whether seedlings or grafted. Another group in the Department will be devoted to ornamental trees and shrubs, fruit trees, the Vine, and small fruits; while, with the idea of presenting the full scope of the profession of gardening, methods of propagating, planting, training, and pruning, as in use for any member of the species, will form a part.

FORESTRY.

The indoor exhibits of forestry and of fish and game will be covered by the same roof. The approximate cost of the temporary building is 350,000 dollars (about £72,900), and the structure will have a frontage of 400 feet, with a depth of 600 feet. The forest plays such a leading part in newly-settled lands, and in the peopling of such tracts, that the endeavour is to let the display be both wide in its scope and practical in its aims. The exhibit will extend over nearly 6 acres, and will show collections of seeds and plants and of indigenous or exotic forest-products, equipment for tree-culture, and processes of culture and management. It will also illustrate forest topography and botany, geographical distribution, forest work, terracing and replanting, with maps, plans, and literature, relating to the craft of forestry.

In the products of the forest will be displayed everything relating to logs, wood for cabinet-work and building, fuel, construction, the dyers' uses, and scientific purposes. Products of forest industries will form a section in the group, i.e., coopers' stock, basket-work, wood-ware, corks, charcoal, &c. A side of the industry less familiar to the general public included in the schedule is appliances for gathering wild crops or products of the soil without culture, as Mushrooms, Truffles, and edible wild fruits; also plants, roots, barks, and leaves, used by herbalists, pharmacists, dyers, and manufacturers of paper. Room is also open for an exhibit of specimens of indiarubber, gutta-percha, gums, and resins.

We have only to add that Mr. G. F. PARKER is the resident representative in Great Britain, and that his offices are at Sanctuary House, Tothill Street, Westminster, S.W.

PLATYCERIUMS.—Our Supplementary Illustration shows a group of these tropical Ferns as growing in the establishment of Messrs. J. HILL & SONS, of Edmonton. This firm makes a specialty of market Ferns, and from time to time exhibits fine groups at the Royal Horticultural Society exhibitions. Platyceriums, apart from their noble appearance, are interesting as possessing two kinds of foliage, the one sterile, flat, and comparatively little lobed, reminding one of a huge prothallus; the other erect and deeply lobed, with dense masses of brown spore cases on the under surface. They grow naturally on the branches of trees to which the sterile foliage is appressed, and most of them produce off-sets by means of which they may be propagated. In some cases buds are formed on the roots, as shown in one of the figures. They are thus best grown on blocks. They are widely distributed in the tropics of W. Africa, the Malay Archipelago, and North Australia (see figs. 10, 11, 12, and 13).

PLATYCERIUMS AT KEW.—The tropical Ferns at Kew have greatly improved in health in recent years. This is largely due to the reconstruction of the house (No. 2) in which they are grown, and to the substitution of clear or white-sheet for green-tinted glass in the roof. Ferns which, before this change was made, were difficult to keep in health, are now generally remarkable for the size and luxuriance of their fronds. This is particularly the case with the Platyceriums

which are grown in what is termed the natural way, that is, instead of being planted in pots or pans, they are attached to tree-trunks to which cork-bark has been nailed in such a manner as to form pockets to hold sphagnum-moss and peat. Thus treated, the plants can be freely afforded water, without any danger of the soil becoming soured; and that these conditions are suitable is abundantly evident from the growth of the plants. The specimen of P. biforme is probably the largest ever seen in Europe. P. madagascariense was introduced accidentally from Madagascar, along with Cymbidium rhodochilum, which invariably grows on the mass of barren fronds formed by the Platycerium. A few sporelings came up on one of these plants at Kew, and these have now grown into nice little specimens. The species and varieties grown at Kew are:—

P. æthiopicum (Stemmaria), Tropical Africa.
P. angolense, Tropical Africa.
P. alcicorne, Australia.
" " var. Hillii, Australia.
P. biforme, Malaya and Philippines.
P. grande, Tropical Asia and Australia (fig. 12, p. 21).
P. madagascariense, Madagascar.
P. Veitchii, hab. ?
P. Willinckii, Java (fig. 11, p. 20). *W. W.*

A GOOD EXAMPLE SET.—The Cornwall Daffodil and Spring Flower Society has unanimously voted a sum of £20 from its funds towards the building of the Royal Horticultural Society's New Hall.

NEW HORTICULTURAL PRODUCTION IN CEYLON.—In the course of his address at the opening of the recent Legislative Council, the Governor stated that, as regards new products, Pará rubber is the most prominent, and is recognised as a regular object of cultivation in the island, with every prospect of a great success. It is hoped that this may be known on the home market as representing high-quality rubber. The trees introduced into Ceylon in 1876 by the Department of Agriculture are now most vigorous, and have this year (1902) again produced a large crop of seed, a quarter of a million of which has been distributed through the island for planting. Tobacco-culture is also proving a success, the areas having extended. Camphor has been planted-out on various up-country estates and will prove a useful additional cultivation to Tea. Cocoa has throughout the island been producing very good crops, and where the rules for exterminating canker have been carried out, the freedom from this dangerous fungus is most encouraging. The amount of crop harvested for the half-year is larger than for any previous half-year.

THE ALPINE-HOUSE AT KEW.—This little house in one corner of the herbaceous ground at Kew, close to Museum No. 2, is now interesting, as it contains a collection of early-flowering hardy bulbous plants, such as delight the lover of alpines. The genera represented are as follows. Those marked with an asterisk are in flower now:—Anemone, Brodiæa, Bulbocodium, *Crocus, *Colchicum, *Cyclamen, Chionodoxa, Corydalis, Fritillaria, *Galanthus, Gagea, Hyacinthus, *Iris, Muscari, *Merendera, *Narcissus, Romulea, Scilla, Sooliopus.

"CASSELL'S DICTIONARY OF GARDENING."—With the issue of the twentieth part this useful publication is terminated. The preface sets forth distinctly what is included and what is omitted. One main object was "to save space whenever it could be reasonably saved, and to reserve it for practical matters alone." The reader knows what to expect; and if the information is less encyclopædic than is the case with some other publications, it is none the less useful for the class for whom it is specially intended. It is well got up, and within its set limitations well carried out.

PINEAPPLES.—The November number of the *Bulletin of the Botanical Department of Jamaica* contains the report of an interesting lecture by Mr. C. E. SMITH on "The Cultivation of Pine-apples in the W. Indies." The soil, though poor, must be light in texture, and thoroughly drained. The plant is propagated by "suckers" or "ratoons" (ratoons being suckers produced below the surface), and "slips" (the "gills" of English gardeners), which are the shoots produced at the base of the fruit. "Eternal vigilance" is required, not only in the cultivation of the plant, but especially in preparing it for market. It must have attained its full size before being gathered, else it will decay before it ripens. Some eighteen varieties are mentioned, of which the smooth Cayenne and the Ripley are considered to be the best.

"THE JOURNAL OF THE BOARD OF AGRICULTURE" for December contains, among other articles, notes on some Potato-diseases, including the black scab (Œdomyces leproides), which produces irregular wrinkled outgrowths from the surface of the tuber. The substance of the tuber is not materially affected. Diseased tubers should be burned to prevent the liberation and dissemination of the spores. Stock should on no account be fed with these diseased Potatos. Gas-lime may be applied to the soil. II. Bacteriosis.—In this disease the leaves soon wither, the stem becomes discoloured and marked with brown streaks along the course of the vascular bundles. In the tuber the bacteria also give rise to a coloured, finally blackish, zone in the tuber, which ultimately rots, while the skin remains intact. The important point to be attended to is the destruction of insects which feed on the leaves. This may be accomplished by the use of Bordeaux Mixture as a spray. Potatos should not be planted in soil that has produced a diseased crop. III. The Sclerotium disease of the Potato.—In this instance the tubers are not directly attacked, but their growth is checked by the fungus which attacks the base of the stem in the form of a fluffy, white mould. After a time, small hard black masses of the size of a grain of Wheat are formed—these are the sclerotia. From the sclerotia the perfect fungus is under favourable conditions developed. This fungus is not peculiar to the Potato, but attacks almost any plant. A diseased plant thrown on the rubbish-heap, or mixed with the manure-heap, is placed in the most favourable conditions for its multiplication; hence, diseased plants should, if possible, be burnt, and gas-lime applied to the land. The Dutch Onion industry, which forms the subject of an article, has already been referred to, as has also the Eelworm Disease of Cucumbers and Tomatos, and the disease of young fruit-trees caused by Eutypella prunastri. The cultivation of medicinal plants is too precarious to be recommended on a large scale.

"LA PEPINIÈRE" (CHARLES BALTET: Paris, Masson).—We could wish that we had more space at our disposal to comment on this, the latest product from the fertile pen of Mr. CHARLES BALTET. It supplies the French nurseryman and cultivator with a practical treatise on the formation and organisation of a nursery or fruit-plantation, of the method of stocking and maintaining it, the cultural details relating to pruning, grafting, and other methods of reproduction, and transplantation. After these generalities, the details concerning the several kinds of plants cultivated in nurseries for use or ornament are given, with numerous illustrations, indexes, &c. Coming from the hands of so able a practitioner and one of such large experience, the book is of special value, and we should be glad to see a translation of it into English. In the meantime, those who read French will find the book very useful to them.

DISAPPEARANCE OF A FAMOUS OAK.—During the last week (says the *East Anglian Times*), the famous Oak in Wayland (or Wailing) Wood, at Watton, Norfolk, was removed from its historic position. It was purchased by a firm of timber merchants at Brandon, and was drawn to the G. E. R. Station by five powerful horses. The wood is situated on the south side of the town, and is confidently believed by the country people to have been the scene of the murder of "The Babes in the Wood," by their uncle! The Oak, according to tradition, is the identical one under which the babes were found. A carved mantleshelf, displaying the story, belongs to an ancient mansion in this wood. The age of the timber, according to experts, corresponds with the probable date of this tragic affair. The dimensions of the tree were about 35 feet long and 12 feet in circumference; it was the largest tree in the wood. It had a most beautiful outspreading top, reaching a considerable distance. *Daily Graphic.*

FLOWERS IN WINTER.—It is often complained that our country is turned into a dumping-ground for the surplus stocks of foreign producers, whose tariff arrangements are anything but favourable to our returning the compliment; but surely none can complain of the "dumping" process when beautiful flowers are sent to our markets. Our remarks are induced by the facts recorded in a daily contemporary, to the effect that a new trade in cut flowers between the south of France and England has been started this winter, and has met with much success. The flowers are packed in small cardboard boxes on the Riviera, and sent through in bulk in hampers as far as Dover, where they are unpacked, stamped, and posted for distribution. Surely many a sick-room will be rendered more bearable by the added daily presence of beautiful flowers, fresh from a land of beauty.

HORTICULTURAL CLUB.—The next house dinner of the Club will be held on Tuesday, January 13, at 6 P.M., at the Hotel Windsor, when Mr. OWEN THOMAS has promised to open the discussion, after dinner, upon "Wasted Opportunities in Fruit-growing in English Villages."

"THE GARDENING WORLD."—This journal has passed into the hands of Messrs. MACLAREN & SONS, 37, Shoe Lane, E.C., by whom it will in future be published as a thirty-two page paper, at the cost of twopence weekly, instead of one penny as at present.

"JOURNAL OF THE KEW GUILD."—The tenth number of the second volume dated December, 1902, has been issued. To those who have been, or are directly, or even indirectly connected with Kew, this publication is of the greatest interest. Nor is the interest confined to those who can proudly style themselves "Kewites," for horticulturists of all degrees will find much in these pages to attract them. The present number opens with a portrait of Mr. J. R. JACKSON, the late Curator of the museums, together with a brief sketch of his long and useful career at Kew. Mr. JACKSON took charge of the museum in succession to the late ALEXANDER SMITH, when it was comparatively a small collection, and has seen it grow under his hands till the one small museum has developed into three large ones, the richest of their kind in the world. This account of Mr. JACKSON's career serves as a preface to the annual report, which shows a satisfactory financial state. Mr. WATSON has become President in place of Mr. NICHOLSON, and Mr. BEAN takes the duties of editor and treasurer. The report of the proceedings at the annual dinner, as well as the record of what has been done at Kew during the year have, of course, been anticipated in the weekly press, but many old Kewites will gladly possess them in a more compact form,

and indeed it is most pleasant to have one's recollections refreshed by this summary of events. Of special value are the notes from old Kewites in all parts of the world. If the Kew Guild did nothing more than publish these notes, it would sufficiently justify its existence. The doings and adventures of Kewites "at the front," or in the more peaceful colonial gardens, are narrated so simply, yet so vividly, that they form historical documents of all the greater value in that they are unpretentious records of the impressions of the writers. As Morocco is attracting much attention just now, and little or nothing is known of the horticultural aspects of the country, we append an extract from Mr. T. W. Brown's letter, dated from Fez, on the 28th of June last:—

"I have been here three months. When I landed in Rabat in January I found the Court there, and had to wait until it moved up here. It took us ten days to come up. The weather was wet, and in consequence the rivers were flooded, and the country was soft and swampy. There are no made roads and very few bridges, so that travelling is not lacking in adventure. The country through which we passed is almost entirely devoid of trees, and even here there are none with the exception of Olive and other fruit-trees.

"Fez is, I think, the most picturesque town I have yet seen. It is situated at the mouth of a deep valley, through which flows the river Fez to join the river Sebou a little below the town. High mountains rise on either side, on the lower slopes of which stand Olive-groves, and orchards of Figs, Peaches, Plums, &c. The town is surrounded by a high wall, part of which is in ruins. As in all Moorish towns, the streets are narrow and dirty. The decoration of some of the mosques is very fine, particularly the mosaics wrought with little glazed tiles on the floors and walls. The climate is most agreeable. Of course, it is rather warm just now (last week we had 99° in the shade), but we experience no violent changes.

"I am engaged in making a flower garden within the palace walls. The greater part is to be laid out in geometrical designs; the surroundings do not allow of much rustic or natural gardening. I have sixty gardeners, and as many labourers as I want. The gardeners are men who have been working in the orchards and vegetable gardens around the town. They are not, however, a very intelligent set. Of course, horticulture and agriculture are carried on in the most primitive fashion. The ground is tilled with simple wooden ploughs drawn by oxen, the corn is cut with sickles which leave a foot of straw standing, and everything else is done in the same imperfect manner. It is interesting however, and gives one an idea of how things were done in the far past. The Moors do not believe in change, and have preserved all the ways and customs of their ancestors."

THE MAN WHO SERVES THE KITCHEN.—A good service has been rendered in the *Gardeners' Magazine*, Dec. 27, by a writer who describes the services rendered by the gardener, to whom falls the duty of conveying the produce of the garden to the kitchen. How important his duties are when conscientiously carried out is well told in the article in question.

"HAND-LIST OF TREES AND SHRUBS."—A second edition of the catalogue of trees and shrubs cultivated at Kew, has been lately issued after revision, and the addition of newly introduced subjects. The number of hardy shrubs and trees now enumerated amounts to no fewer than 4,500, exclusive of the Conifers which form the subject of a separate list. The value of these "hand-lists" as records of what is in cultivation, and as affording standards of authorised nomenclature and synonymy, can hardly be over estimated. References to figures are freely given, and these are most serviceable, but for the sake of those who are not botanists, an explanation of the abbreviations made use of, would be desirable in future editions. The asterisk prefixed to some of the species, presumably indicates that the plants so marked are tender at Kew.

THE CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY will hold their third annual dinner and smoking concert on Wednesday, January 14, at the Café Royal, Croydon. Particulars may be had upon application to Mr. H. BOSHIER, 62, High Street, Croydon.

PLANT PORTRAITS.

BAROSMA LANCEOLATA.—*Revue de l'Horticulture Belge*, January.

CATTLEYA MOSSIÆ VAR. SIR THOMAS LIPTON.—White, with throat of lip yellow. *Revue de l'Horticulture Belge*, January.

COLEUS THYRSOIDEUS, Baker.—See *Gardeners' Chronicle*, 1901, i., p. 39. *Garten Flora*, t. 1506, January.

ERYTHEA BRANDEGEEI, Purpus.—A new Californian Fan Palm, described and figured in the *Garten Flora*, January, 1903, figs. 1, 2, pp. 12, 13.

LÆLIO-CATTLEYA YELLOW PRINCE (Lælia xanthina × Cattleya Gaskelliana). *Revue Horticole*, January 1.

PHILADELPHUS DELAVAYI.—*Revue Horticole*, Jan. 1.

POLYGONUM OXYPHYLLUM.—*Revue Horticole*. Jan. 1.

ROSE G. NABONNAND, TEA, pale flesh colour; and R. PRINCESSE DE BASSARABA DE BRANCOVAN, TEA, rose-pink. *Rosen Zeitung*, December, 1902.

WATER SUPPLY FOR GARDENS AND HOT-HOUSES.

THE question of water supply to gardens and glasshouses, &c., is a very important one, and this is specially the case in isolated districts where skilled labour is often difficult to procure. A few hints, therefore, on the general principles of the subject may not be out of place, but the writer desires to state that this article will deal with the raising and distribution of water by simple and easily obtained means, as it is obvious that the arrangement and care of the more costly steam, gas, oil, and electrically driven pumping installations can only be properly dealt with in the special text-books procurable on the subject.

Where water exists, it is, of course, only a question of locality to arrange for its distribution, and if a spring exists on high ground and the spot to be supplied is at a lower level, the distribution is a matter of ease (care being taken to lay the pipes as nearly as possible in a straight line, and to avoid following the irregularity of the ground as far as possible, for if this is done, air will often accumulate in the bends of the pipes and cause a good deal of trouble). Few situations, however, are so favoured, and recourse therefore must be had to some means of raising the water from its source to a point sufficiently high to permit it to fall by its own gravity to the point supplied. These will be described as far as possible, but before doing so, a few remarks may be briefly given on the general arrangement of pipes, and also on pumps generally.

Commencing with the pipes, these should always be as large as possible, and laid at least 3 feet below the ground to avoid damage by frost. Not only do small pipes rapidly "fur" up, but often the supply is seriously obstructed thereby. Where it is absolutely necessary to carry the pipes above ground they should be protected by felt or similar material, such as asbestos; and where they are carried across open ground, marks, such as square pieces of stone, should be placed to show the course of the same. A stop-valve should always be placed close to the reservoir, to permit the supply to be shut off at any time for obtaining access to the pipes or other purposes.

Of the various means of water raising, a pump of some kind forms the simplest and best method of carrying out this object, but it is not possible to enumerate the countless forms of this useful appliance, and there would be little utility in doing so. The writer can only mention the forms commonly made use of, referring those interested to the numerous treatises on pump construction for fuller details.

By far the commonest form of pump is the "lift" or common house-pump familiar to everybody (fig. 14, p. 27). A few words may be given to its action, as it will assist towards the understanding of the general action of pumps as a whole. Water cannot follow the bucket of a pump beyond a depth of about twenty-eight feet, and if the suction-pipe of a pump is very long, it is always a good plan to place a valve at the end of it, termed a "foot" or "retaining" valve, the object of which is to keep the pipe full of water to enable the pump to start easily when stopped for any length of time. The "lift" pump, then, should not be used where the depth exceeds the above amount.

This pump like many of those to be described, consists of a "body," "barrel" or "cylinder," a "bucket," and two "valves," one in this case covering an opening in the "bucket," the other closing the opening of the suction-pipe leading to the well, or other source of supply. When the "bucket" is pressed down, the valve in it opens and closes; when the "bucket" is drawn up, the water is drawn up with it, and discharged at the spout. At the same time, the "bucket" in rising causes a "vacuum" or sucking action beneath it, and the air pressing on the surface of the water in the well or pond, causes it to rise through the valve at the bottom of the pump-barrel, which closes on the descent of the bucket for another stroke.

The force pump, which is employed where the well is deep, or where the water is to be forced a long distance, differs from the lift pump by the bucket (which in this case is often termed a "ram" or "plunger") being solid. There are two valves, like the former; but while one is placed at the bottom of the barrel, the other is placed in the pipe which conveys the water from the pump, and is termed the "rising main," or delivery pipe. When the bucket is raised, the water follows it as before, but on its descent the bottom valve closes and the one in the delivery-pipe opens, allowing the water to be forced through it by the bucket up the pipe; when the bucket rises again the delivery valve closes, and the action is repeated. This form of pump is generally placed as near the supply as possible, and if in a well, is worked by a long rod, which is carried down to it from the surface of the ground. An air vessel is often placed on the delivery-pipe, and should be as near the pump as convenient. The sketch (fig. 15) shows the usual form adopted when the pump is worked by power of some description.

In very many cases where water has to be raised to upper floors of houses, or similar duties these two different kinds of pump are combined; when the pump is of this nature, it is known as a "lift-and-force" pump, and is constructed as follows:—The pump "barrel" and bucket are exactly like a lift pump, and it also has the valve at the bottom of the "barrel," in the same manner; but the "rising main," or delivery pipe, leaves the pump at the top, which is closed in by a tight-fitting cover, and the rod working the bucket passes through it by a "stuffing-box," which is an opening with a hollow plug through which the rod passes. The plug screws into a socket, which is filled with greased tow, and which allows the rod to work easily, but prevents the water from coming out.

Now the action is exactly the same as to the down stroke as the lift pump, but when the bucket rises it will be seen that the water is forced before it through the delivery valve (which like the force pump is placed close to the pump), and

up the delivery pipe. If water is wanted on the spot, a tap is placed close to this valve, and by opening this a pail, &c., can be filled (see fig. 16).

The last description of pump is used only for shallow wells or pits, and is often employed for liquid-manure tanks; this is the chain pump, which is the simplest of all, and consists of a series of what may be called round plugs fixed to a chain passing over a wheel at the top of the pump, turned by hand or other means. When these are put in motion, they enter the pump-barrel which they do not quite fit, except for a short length at the bottom, and each carry up a small quantity until it is discharged at the spout. On account of much power being lost by friction, and the fact that as the lift becomes deeper it

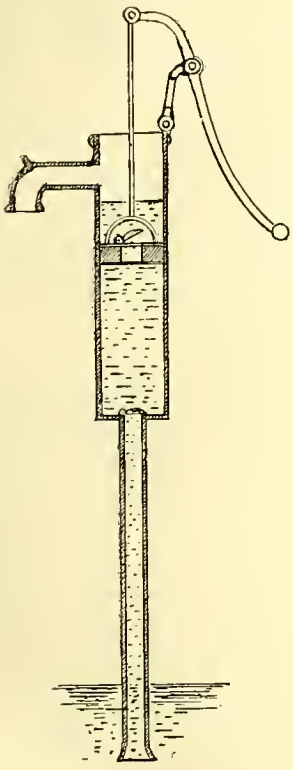


FIG. 14.—COMMON LIFT PUMP.

requires a great expenditure of power, this pump is not employed for deep wells.

These are the main principles underlying pump construction; but it must be understood the arrangement of details is often very varied, and can only be studied by reference to the many text-books thereon.

RAMS.

We must now, however, briefly enumerate the various methods by which (other than by hand or animal power) water is raised, and one of the oldest and simplest of these is what is known as "The Hydraulic Ram." This instrument occurs in many forms, but the principle is very simple, and is the fact that a large quantity of water falling from a low elevation by its force can be made to force a small quantity any height desired. By reference to fig. 17, it will be seen water descending the pipe *a* has just sufficient force to close the heavy valve *b*, and the momentum given to the water by its force being suddenly checked causes it to open the delivery valve *c* at the bottom of the air-vessel *d*, and rise through the delivery pipe *e*, to almost any height. The heavy valve *b*, then opens, and the water rushes out until its force closes it, when the action is repeated. This instrument will work for weeks together without attention, but it will not work properly without an air-valve *f*, on the air-vessel *d*, which in this case is a self-acting one, and requires no attention. The quantity raised depends largely on the height to which the "ram" has to force it. If only a short distance

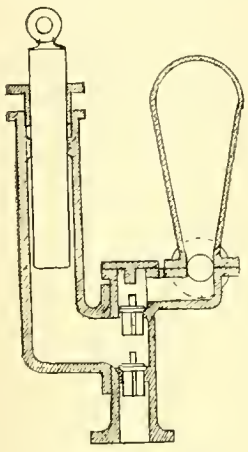


FIG. 15 FORCE PUMP, WITH AIR-VESSEL.

from the "ram," and not greatly higher than the supply, the machine will raise nearly one-third of the water; but if, as is frequently the case, the water has to be carried a considerable distance or height, the quantity raised will not exceed one-eighth, or even less. It will be

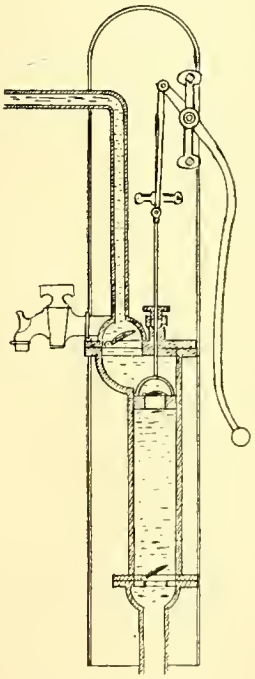


FIG. 16.—COMBINED LIFT AND FORCE PUMP.

easily seen, therefore, that the "hydraulic ram" should not be employed unless the supply is either abundant, or else of small value. In the latter case, "rams" are often fixed to work at intervals, and the supply is arranged so that on reaching a certain height it opens a valve which admits the water to the "ram," which commences to work until the water sinks below the valve, when it closes until the pond refills.

This is the most satisfactory of all the self acting water-raisers, for although several make-shift devices exist, the "ram" is so cheap to erect that it is almost always adopted. The simplest of these devices, apart from the "ram," is a wooden trough, divided by a partition in the centre, and hung upon pivots in the stream, which need only be bayed back sufficiently to allow the trough to move, and for the water to fill it. The water flows into the trough, and as it is balanced the weight causes it to descend, emptying that side, and allowing the opposite side to fill, when the operation is repeated. One end of the trough is connected to the handle of a pump, which therefore becomes self-acting.

This plan is simple and cheap, but very wasteful of water (perhaps more so in proportion to the amount raised than the hydraulic ram),

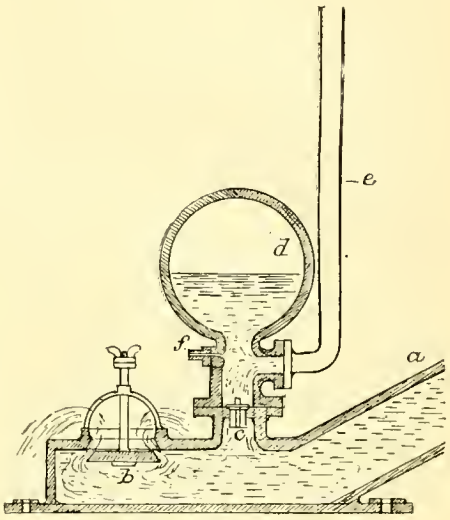


FIG. 17.—THE HYDRAULIC RAM.

and only suitable for raising water to a small height. There are, however, circumstances where it may be found useful. *Sydney Russell.*

(To be continued.)

HOME CORRESPONDENCE.

CALANTHE VEITCHI AT CLIVEDEN.—I wish to add to my statement concerning the plants mentioned, that they were not seedlings; and Mr. Bacon was foreman in charge at Cliveden at the time, and not head gardener. He succeeded Mr. A. Wadds, who was then head, a short time afterwards. *F. Williams, Frensham Hall Gardens.*

RAINFALL IN 1902 AT PENCARROW, BODMIN.—The total rainfall was 42·55 inches, as against 40·17 inches in 1901, and 46·22 inches in 1900. The number of days on which ·01 or more fell were thirteen more than in 1901, and exactly the same number as during 1900. The 1·73 ins. measured at 9 A.M. on Nov. 28 last constitutes a record here for twenty-four hours. *A. C. Bartlett.*

THE NATIONAL CHRYSANTHEMUM SOCIETY.—I congratulate this body on the change it is to effect in the autumn in the place of its exhibitions. The Crystal Palace will certainly furnish an atmosphere that is morally as well as physically pure, where the side-showmen's potent lungs do not make demoniacal discord. There too can, with the ample space at disposal, a really grand show be made. Whether the old frequenters of the shows will follow to the Palace has to be seen. It is just possible, however, that should they not, many other true flower-lovers may do so. *F.R.H.S.*

BEGONIAS. — Having had many letters of inquiry about Begonias, I am taking the liberty of sending you a sample, thinking it may be of some interest. If not too late, I should like to add to the notes sent last week (should you think them of any value to you) that the plants here, 3 feet each way, are not staked out, but slung up to one centre stake in each pot. The natural habit and growth of the plant is never interfered with. The injurious system of stopping cannot be too strongly condemned. *John Fleming, Wexham Park Gardens.*

DENDROMETER. — Mr. Simpson deprecates the use of the dendrometer, but that does not detract from its value and usefulness. No doubt some men are able to accurately estimate with the eye the approximate amount of useable timber in a tree, there are numbers in the country who have had sufficient practice and experience to do so; but the "eye-man" could not possibly give one the exact height, or even to a few feet, of the fine specimens of Conifers growing in the country. For his own purpose, Mr. Simpson's rods are undoubtedly useful and handy, but are scarcely adapted for measuring such trees as the 130 feet high Douglas Fir at Dropmore. One needs only to run the eye down the "List of Conifers and large specimens," compiled by the late Malcolm Dunn, to realise what an impossible task it would be to measure by rod well furnished Conifers of over 40 feet where accuracy is desired. Some dendrometers are, I know, troublesome to use, but Mr. Simpson cannot be acquainted with the pattern described, or he would not characterise it as such. I have recently measured considerably over 100 specimens, and found it very easily used, and preferable to a rod for trees of even 25 to 30 feet in height. In conclusion, I would draw your correspondents attention to the illustration in your advertisement columns. *A. C. Bartlett, Pencarrow.* [We have used this instrument with much satisfaction. ED.]

HYDRANGEA PANICULATA FOR FORCING.—Your correspondent, "S. C.," in his article on the above in the *Gardeners' Chronicle* of the 3rd inst., mentions "that shoots on these plants will be some 3 feet in length, and from 6 to 12 inches have to be cut off." I am afraid if any grower were to follow his advice they would obtain very indifferent results, as this would cause the top buds only to break, and these being the weakest would only give poor heads of bloom, and also leave unsightly bare stems below. The better plan is to prune back to within three or four buds from the base, by which means you get the strongest buds to break, which will give the grower fine heads of bloom, and also leaves, as near to the pot as it is possible to obtain them. *E. B.*

THE ROYAL HORTICULTURAL SOCIETY. — On reading your leading article, p. 1, January 3, as to the erection of a suitable home for the Royal Horticultural Society, and hinting at the increasing tendency to call in State aid, I may say that surely there was never a better time than the present to seek such assistance. What is the object and purpose of a horticultural hall? Is it not to increase and assist the maintaining of the State in advising and discovering the best means of making the most of the soil, both in horticulture and agriculture? In the present day, the knowledge learnt in the garden is turned to good account in the field. The Society can boast of the elect of the nobility and Members of Parliament as subscribers. Is there not one out of this great company that can make application in the right quarter for the necessary funds for such a national want? and let the hall be called the National Horticultural Society. Are we in England going to continue in the present state of things, and see millions year after year going out of the country for fruit alone? Land half cultivated that would produce millions if properly handled. Nothing would bring the labourer back to the land quicker than an extension of fruit growing. The time has come when something should be done to bring about the desired end. The market for fruit in England is assured—proved by the millions of pounds sterling we are paying for the imported article. Let the foreigner see that the State is waking up to the necessity of keeping this money in the country, by encouraging the production of its own fruit; they would soon look to other climes for the disposal of their's. Sooner or later this country must acknowledge that corn-growing is a dying industry. *W. H.*

THE HORTICULTURAL HALL.—I am sure everyone interested in the cause will endorse your words, "that this subject has been treated, and rightly so, as if it were a national matter;" and being a national matter, affecting the whole community, it should from the very first have the utmost publicity. At the least, every Fellow of the Royal Horticultural Society should have an opportunity of expressing his opinion upon the vital points, amongst which are the plans of the Hall. Allow me to take exception to the words "all questions of detail and criticism can be left open for future consideration; the requirements at the present time are funds." I feel sure that to command success no stone should be left unturned to obtain the very highest professional skill, so that a building worthy of a national institution should be erected. An exhibition of competitive designs would attain this object, and by giving the Fellows a voice in the selection materially strengthen the position of the Society, inspire confidence in those most interested, and as a natural result, funds would be readily forthcoming for a scheme which had the general approval. This is not a "detail which can be left open for future consideration." Allow me to ask if the plans which have been circulated are finally approved? If so, of course further comment is unnecessary. *James L. Wood, F.R.H.S.* [Perhaps the Council would authorise the Secretary to reply to this question. We have no definite knowledge. ED.].

HYBRID RUBUS. — In my note on these hybrids on p. 12 last week, I am, by an error, made to term the new Blackberry, The Mahdi, as "sour." What I wrote was, "true" Blackberry, to distinguish it from others that were more properly classed as Raspberries. The context shows that the word used was a misnomer. *A. D.*

RAINFALL IN 1902 AT THE ROYAL GARDENS, WINDSOR.—Although the past year may be described as wet, owing to frequent rains and dull unsettled weather, the total rainfall, 22·07 ins., was about 3½ ins. less than the average, 25·50 ins., for this district; which amount has not been reached since 1894, when the great floods occurred, and the total rainfall was 30·27 inches.

Month.	Total Depth.	Greatest fall in 24 hours.		Number of Days on which ·01 or more fell.
	Inches.	Depth.	Date.	
January	0·88	·25	1 & 26	11
February	1·16	·27	24	12
March	1·97	·76	14	14
April	1·07	·17	15	13
May	2·19	·33	3	24
June	3·63	·94	13	19
July	1·12	·24	9	13
August	3·88	·89	18	26
September	1·58	·59	11	10
October	1·57	·43	9	18
November	1·97	·45	28	15
December	1·36	·32	17	12
Total	22·07	...	...	186

Last year rain ·01 (or more) felt on 186 days. June was the highest total, 3·62 ins.; and the heaviest rainfall in twenty-four hours was ·94 in., on the 13th of that month. *T. Edwards.*

INCOME-TAX RECOVERY.—The tax-collector is beginning to make his presence felt, but before satisfying his demands, readers of the *Gardeners' Chronicle* should carefully ascertain whether the amounts they are asked to pay are correct. Having regard to the high rate at which the tax now stands (6¼ per cent. of the income), it is surprising that so many of the great middle class fail to avail themselves of the relief provided by the Acts. Where profits assessed under Schedule D show a falling off for the current year, it may be possible to get the amount of the demand adjusted to the proper amount before payment of the tax; alternatively, repayment of the amount overcharged should be claimed. Where the whole of the income for the year has already been received, claims for repayment of tax overcharged can in many cases now be made for four years, and the sums repayable may exceed £82, even in the case of incomes of £500 per annum. We shall be pleased to advise anyone, without charge, whether a claim for repayment can be made in respect of income from rents, dividends, interest, annuities, &c., on their sending us full particulars of their incomes and a stamp for reply. *The Income-tax Adjustment Agency, Ltd., Poultry, London, E.C., January* 1, 1903.

CUCUMBER CULTURE.—Allow me to reply to "W. P. R." in a few words with reference to his remarks in the last issue of the *Gardeners' Chronicle*. "W. P. R." cannot have the faintest idea of the state of an Indian river during the period of Cucumber-growing on its banks, otherwise he would not have made the mistake of stating that if a "hole a foot or so deep" had been dug, it would soon have been "partly filled with water." If this were correct, we should, methinks, hear less of the deplorable results of famine in India. "W. P. R.'s" experience for eight years in Cucumber-culture seems to have been most satisfactory, and agrees in some important points with what I have been advocating. I think it a pity, for his own sake, that his subsequent operations have not been on the same lines. Whilst adhering firmly to all I have written with regard to Cucumber-cultivation as it is now almost universally carried out, I am willing to admit my limited capabilities as a teacher; at the same time, I fancy that in the gardening profession the balance is about equally adjusted between those who are too willing to teach and those who are unwilling to learn. *J. Lowrie.*

LATE GOOSEBERRIES. — I read with some interest the article under the above heading, in your issue of Dec. 20, p. 451, and while I agree with Mr. Cook that free-setting varieties will bear freely on a north wall, I consider they are not worth the space they occupy, the fruit being small, sour, and tough skinned, and quite unfit for dessert. Nor have I found it necessary to protect the fruit in any way from birds, wasps, flies, &c., for the reason, I suppose, that the flavour is not suited to their tastes. Even the best flavoured varieties from the open quarter are not much sought after for dessert, as the supply of better class fruit at that season is plentiful. Only fancy a dish of Gooseberries from a north wall, being placed in company with Grapes, Melons, Peaches, Nectarines, &c. I picture to myself the peculiar expression on the face of the person who might be tempted to taste one after partaking of a well finished Melon, Peach, or Nectarine. A good supply of ripe Gooseberries can be had over a long season by a careful selection of varieties at planting time, of early, midseason, and late sorts in a sunny position, as it is only from there you can expect good flavour. It would be interesting to have the opinion of other readers of the *Gardeners' Chronicle* on the subject. *James Fulton, Grimsdyke, Harrow Weald.* [We have a pleasant recollection of good flavoured fruits of the Red Warrington variety, from a north wall in a garden in the north of England. ED.]

PEAR JOSEPHINE DE MALINES.—Usually the fruits of this excellent variety of Pear are in use till the month of February, but this year it has been very disappointing at Wrotham Park. The crop was a very good one, and the fruits were of a fair size, and very clean in the rind; but to my surprise they commenced ripening at the end of October, and were good for a few weeks only, in fact by the middle of December I had not a sound fruit left. The flesh of a nicely ripened fruit of this variety is usually tinged with red, but this year ours were lacking in this respect to a great extent, owing probably to the absence of sunshine, and several of our Pears have been of poor flavour this year from this cause. Our best Pears were Doyenné du Comice, Williams' Bon Chrétien, Winter Nelis, Beurré Superfin, Emile d'Heyst, and Pitmaston Duchess, the latter being better than I have usually found it to be. Apples, too, have kept very badly, compared with previous years. On bushes, our heaviest cropping Apple was Lane's Prince Albert; other less useful varieties we hope to replace with Lane's in the spring. *H. Markham, Wrotham Park, Barnet.*

POINSETTIAS AT LEIGHTON, WILTS.—When the Chrysanthemum ceases to afford blooms, Poinsettias take up the floral display, and rarely with greater effect than at Leighton, Wiltshire. The head gardener at that place, Mr. Bound, a brother of the writer of the Orchid Calendar in the *Gardeners' Chronicle* in 1902, extends the propagation of Euphorbia (Poinsettia) pulcherrima from May to July, taking suitable cuttings when they offer. He attaches some importance to the choice of two-year-old plants for furnishing the cuttings, because of the greater solidity of the shoots as compared with younger stock plants. Bottom-heat in a close case causes rapid rooting—a point of importance. When rooted, and carefully accustomed to the air, the young plants are afforded less warmth, so as to prevent an undue lengthening of the stem. The plants observed at Leighton ranged from 1 ft. to 3 ft. in height, and their bracts are of good size. Two varieties are grown, the early form with bracts of a lighter shade of colour, and greater compactness of head; but the old E. pulcherrima is still the best. A later batch of cuttings inserted in September furnish dwarf plants in small pots, very useful for setting narrow stages and for the dinner table. *S.*

BINDING GRAFTS. — Having been a constant reader of your paper from the days of Dr. Lindley to those of the present editorial staff, I have derived during those years great pleasure and profit from the writers of the various contributions which have appeared. I am now about the same age as your correspondent who wrote on the subject of grafting without clay or wax. I quite agree with him, and had myself as a lad bound up many a thousand grafts, under such men as Mr. Colley, of Orchid Bateman's fame. I also served under the Townshend and Fancourts propagators, who always bound their grafts with twisted matting, so as to be able to see the working of the sap. It may be said this applies more to Camellia and indoor grafting. In later years, I, with my own hands, grafted thousands in the same way out-of-door, and with the best of results, with matting or raffia alone, a little more care being required in covering at the top of the cut-off stock. *W. B.*

CALANTHE VEITCHI. — So much has been written in different issues of the *Gardeners' Chronicle* respecting Calanthe Veitchi, I think a summary of their cultivation may be of use to readers. In a great many places this Orchid is very much neglected, but when grown well, there is nothing to surpass it for Christmas decorations, and it may be freely used for house, conservatory, or table. We have at the present time many racemes measuring over 50 ins. from the base to the summit, the flowers of good size and splendid colour. This I attribute to the pseudo-bulbs not being too large, and also not being too much hurried into flower. After finishing their growth, a lower temperature suffices. The best time for potting this species is the month of March, when growth has recommenced. The cultivator should never cut away all the old roots, but leave plenty to support the pseudo-bulb in position at the top of the soil, which should be quite half or even an inch above the rims of the flower-pots; in no case should too large ones be used, sizes 48 and 32 being quite large enough. The compost should consist of one part turfy-loam, two parts turfy-peat, one part sphagnum, with an addition of small pieces of dry cow-manure, but not using any sand. Special care should be taken to use no fine material whatever, letting the roots ramble with as much freedom as possible. Firm potting should not be resorted to, the fingers being sufficient. In finishing off, use a stick and an old pair of Vine-scissors for cutting off the rough material used. Then place in a temperature not less than 60° for the first month, after that the stove temperature will suit them, but be most careful in watering during the first period of their growth; also avoiding strong sunshine, as it is apt to burn the foliage. When growth is completed, which would be in September, a lower temperature is essential, gradually exposing them to the sun to ripen the bulbs. During the growing season, applications of manure-water are beneficial, but in no case use artificial manures. Damping between the pots with manure-water is of great benefit to the foliage; syringing should not be resorted to at all, as it often causes that black spot which is seen on the pseudo-bulbs. An occasional sponging of the foliage is all that is necessary to keep in check red-spider and scale. After the flowering period is over, Calanthes should be rested in a temperature not less than 60°. *W. Fulford, Castle Eden Gardens.*

A LARGE VINE AT FINCHLEY. — Your recent note respecting the old Vine at Hampton induced me to call and see a large Grape-vine at Finchley. This Vine, a Black Hamburgh, is aged about forty years, and of it much has been written. It will, I fear, have to make way for the ubiquitous builder, who is at Finchley, as in many other London suburbs, covering the land rapidly with houses. The Vine was planted by the late Peter Kay in a border that is entirely outside, and it now fills a span-roofed house measuring 100 feet by 20 feet. Planted on the west side towards the middle, it spreads equally on each side, and consists of five main branches which have, however, been supplemented by training four other branches, one between each pair of the originals, with the result that the vinery is fully furnished. Some rods run horizontally from the main stem, which is across the house from side to side. The house is about 8 feet to the ridge, and a sunken path affords room for attending to the Vine. It is an excellent house for early forcing, the flow-pipe on each side of the house being carried well up each side, and it falls into two return-pipes on each side of the path. The Vine bears regularly a full crop, and shows no loss of vigour. *S. C.*

CULTURAL MEMORANDA.

BEGONIA GLOIRE DE LORRAINE.

On p. 451, last vol., "H. W. W." recommends cultivators to pinch out the points of the growth and afford the plants cold frame treatment, with a free circulation of air day and night during the summer and early autumn. In my experience, I have unfortunately found that these Begonias resent such treatment. The constitution of the plants gets weakened, and they soon become infested with thrips and disease. The secret of growing these plants well, is to do so quickly in a warm moist atmosphere, from the time the cuttings are put in, until the flowering period. In the first place, procure healthy cuttings. For very early propagation, leaves with about an inch of stem may be dibbled into cocoa-nut fibre, and shaded from sunshine; these will soon emit roots, and each leaf will produce two or three growths. Insert these when large enough, as they are better cuttings than can be taken from the base of the old plants during the winter. Then apply water and plunge the pots to the rim in cocoa-nut fibre in a propagating-ease, having a bottom heat of about 75° or 80°. In about three weeks the cuttings will have rooted, when they may be gradually inured to a cooler position near the roof glass. The plants should be shifted on into 3-inch pots before they become pot-bound, using a compost of three parts good fibrous loam, one part leaf-soil, and the remaining part of fine crushed charcoal and coarse sand. The soil made use of at the final potting should contain a fair quantity of dried cow-manure, and the loam and charcoal should be used in a rougher state than in the case of the earlier potting. Do not pot too firmly, or the growth will be stunted; nor use too large pots when repotting, but afford thorough drainage. Afford water sparingly until the plants are well rooted into the fresh soil, then may be used abundance of stimulants. Clay's Fertiliser, with alternate doses of liquid cow and sheep-manure, and occasional applications of soot-water, are as good as any that can be used. A low span-roofed house or pit, having a temperature of about 65°, allowing the thermometer to run up with sun-heat, will suit them well; by closing the structure early in the afternoon during summer, very little or no fire-heat will be needed. Freely syringe the plants with rain-water, and shade them from strong sunshine. Under such treatment, plants rooted during March and April, and potted-on into 16 or 24-sized pots, and kept in such a congenial atmosphere that not the slighest check to growth is ever experienced, will by the autumn produce plants 3 feet in height and 3 feet through. Plants for flowering in small pots should be propagated during May and June. I find it more difficult here to obtain height than width The growths should never be stopped, but the flower-buds must be pinched off until the plants are required to bloom; grown thus, thrips or mites will never make their appearance. I have an idea (I am aware some readers will say an erroneous one), but I am writing from close personal observation and experience, that these plants and similar subjects such as Poinsettias for winter-flowering, grown on this rapid system of cultivation will keep the plants in vigorous growth from first to last, and give them a strong constitution which will enable them to survive and last a longer time in perfection when placed in rooms or in a cold conservatory. It is a question of constitution, rather than one of affording the plants cool treatment during their growing season. *John Fleming, Wexham Park Gardens, Slough.* [Our correspondent has exhibited the finest plants of this Begonia we have seen this season. ED.]

PERENNIAL ASTERS.

Those who have aged plants of Aster ericoides, elegans, &c., will do well to lift from the open ground, putting them in pots or boxes, and bringing them under glass. When growth begins, they may be divided or cuttings taken. Not much artificial heat is required. Asters are hardy plants, but, as is usual with new varieties, they are worked up too rapidly, and the young plants require careful treatment, as do likewise the stock plants. Some varieties are very shy in forming shoots, and the trade find a difficulty in fulfilling orders. Asters make excellent pot plants, and in years to come they will be largely grown. The pot plants, when well rooted, should be plunged on a cool border, in order to prolong the flowering season. Much rain is a drawback to the late-flowering plants, hence some kind of temporary protection is necessary. *S. C.*

VARIORUM.

THE GARDENER'S WAIL

Wauken, my muse! yer loodest wail,
Lend to proclaim the waefu' tale,
O' a' the ills that do assail
The gairdener's occupation.
If ere by chance ye meet a chiel,
Wi' careworn face an' een that reel,
An' doonbent head, then mark him weel—
His wark is cultivation.

Auld Milton said—I have heard tell,
When Adam's curses cam' pell-mell,
That maistly on the ground they fell,
As aff his head they glinted.
I weel believe't: the son o' toil,
Wha's lot hae fa'en to till the soil,
For want o' care will never spoil—
His sorrow's never stinted.

Lang syne, when Adam sawed his seeds,
Ere he began his evil deeds,
He ne'er was bathered pu'in' weeds—
Sae says the auld narrator.
But noo, as sune's we tak' a spade,
An' get oor bit o' gairden made,
'Gainst us we quickly find arrayed
The very pooers o' natur'.

If even the seasons had the grace
To come in turn an' keep their place,
We wadna' hae sae much to face,
Nor view wi' consternation.
In summer, when we look for heat,
We're cursed wi' shooers o' hail an' sleet;
An' autumn's early frosts complete
The work o' devastation.

The rain has ruined oor crap o' Peas,
The blight has spoilt oor Aipple trees,
Oor grozers covered wi' greeu flees;
An' then the festive snailes
Did quickly seal oor Cabbages doom;
Sma' wonner tho' we fret an' fume
To see oor best Chrysthan'mum bloom
Nabbed by the forky-tailies.*

Oor foes are mair than mind can grasp—
The grub, the weevil, bug, an' wasp,
Worms for the Carrot an' the Rasp—
In truth their name is legion.
But, faith, I'll shak' the gairden mud
Frae aff my feet afore I'm wud,
An' quickly pack ilk stick an' dud,
An' try some ither region.

Hortus, in the "People's Journal," N.B.

Obituary.

JAMES WARD. — This well-known member of the staff of the Royal Nursery, Slough, and head of the office department, died at Slough on the 5th inst., at the age of sixty-three years. James Ward was the son of a gardener, who for many years had charge of the gardens at Shottesham of the late Rev. Charles Fellowes, one of the most noted florists of the last century, and came to the Royal Nursery, Slough, in 1853, when fourteen years of age, and commencing as a crock-boy, gradually worked himself up through the various departments, until he obtained the headship of the office, a position he filled for many years past. His father died last year, at the age of eighty-seven.

J. MCKENZIE.—We regret to inform our readers of the death of Mr. McKenzie, head gardener to F. S. W. Cornwallis, Esq., Linton Park, Maidstone. The deceased had been ailing for some months past. Many will remember the very fine Apples that he exhibited at the Crystal Palace for several years, always holding his own against the very best growers; he was also very successful some years ago with Chrysanthemums, taking several prizes at the National Chrysanthemum Society's shows at the Aquarium. He leaves a widow and small family, the youngest being about fifteen.

NOTICES OF BOOKS.

A MANUAL OF INDIAN TIMBERS. By J. S. Gamble, M.A., C.I.E., F.R.S., late of the Indian Forest Department. New and revised edition. (London: Sampson Low & Co., 1902.)

MR. GAMBLE has done good service by writing a second and much-improved edition of his *Manual of Indian Timbers*. The former edition was due to the initiative of Sir Dietrich Brandis, then Inspector-general of Forests in India, who prepared a collection of Indian woods for the Paris Exhibition of 1878, several identical collections being sent to the chief Indian forest officers, to the museum of the Royal Gardens at Kew, and to a few similar institutions in Europe and America, as well as to the Imperial Forest School of Dehra Dun. Mr. J. S. Gamble and Mr. A. Smythies were Brandis' assistants in this work, and to Mr. Gamble was entrusted the preparation of the first edition of this manual, which was published by the Government of India in 1881. Twenty-one years have therefore passed since its first appearance, during most of which time Mr. Gamble served in the Indian forests, and he has made it a labour of love to collect further specimens, to examine other collections, and study the properties and uses of Indian woods, the growth and habitats of the trees which produce them, and the scientific and vernacular names of the species. The difficulty attached to these vernacular names is clearly brought out in the introductory chapter, as in the Himalayan region alone almost every valley has different names for even well known trees, and about fifty different Indian languages are referred to, though they are probably not more than one-fourth of the languages spoken in this vast country, to say nothing of Ceylon, the words of which are now, for the first time, included in the Mannal.

The forest regions where the timbers grow are as follows, each being denoted by a letter imprinted on the specimens:

H. The western Himáláya, from the river Indus to the Nepál frontier.

P. The dry region of the Punjáb, Rajputáua, and Sindh, with Báluchistán.

O. Plains and sub-Himáláyan tract, as far as Bengal.

C. Central India, between the Jumna and Godavery rivers, with Orissa and the Circars.

E. The eastern Himáláya from Nepál; the Khásia Hills, Assam, Chittagong, and the Sundurbans.

D. The Deccan and Carnatic, chiefly in Madras and Mysore.

W. The west coast of the peninsula, viz., the western Ghâts, and the coast region.

B. Burma and the Andaman Islands.

No letter is given for Ceylon.

In spite of the author's explanation that this was not done, it seems a pity that a map was not supplied of these regions, with their comparative rainfall, and with lines showing the incidence of frost, as frost and rainfall are the chief determining factors of Indian forest growth. The forest growth of each region is briefly described in the introductory chapter, and in the body of the work some account is given of the mode of growth and sylvicultural requirements of the more important trees. It may be noted here that the Oaks, for which the author states that the Khasia hills are chiefly remarkable, are confined to a few hill-tops, the great mass of the upper Khasia hills being covered with grass-land, in which the Khasia Pine flourishes whenever it escapes from the annual fires lit by the Khasias, who burn the grass to make clearings for their cultivation.

It is noted that the Indian Forest Department administers about 118,000 square miles of forest, of which 81,000 are demarcated as permanent forest reserves. This is about 8½ per cent. of the territory of British India; but no mention is made of the extensive forests under native rule. The Native States of India are chiefly situate on hilly land, where agriculture can never flourish as well as it does in the more level country under British rule, and where, consequently, forest conservancy is most urgent. Most of these Native States have their own Forest Departments, the more important of which are supervised by trained British officials, while their superior and subordinate executive staff is to a large extent recruited from the Imperial Forest School of Dehra Dun. It is now time that a second school, as well equipped as that of Dehra Dun, should be established in the more tropical forests of the Bombay or Madras Presidencies, where the conditions of growth differ considerably from those of the north of India, especially as the Government of India could not recently at Dehra Dun find room for students from Mysore, one of the most important of the Native States of India. The French also intend to send their foresters from Tonquin and Cochin-China to study at an Indian forest school.

The Ceylon Forest Department is also under trained management, and sends its foresters to the Dehra Dun Forest School, so that this manual will be welcomed by the large staff of forest officials in India, Ceylon, and the French Asiatic possessions, as well as by a great number of Indian planters, timber-merchants, and by the numerous owners of private forests throughout these countries. It will also be accepted throughout the world as the authority on Indian timbers.

Altogether, 1,450 species of woody plants are described, and Mr. Gamble has estimated the number of trees, shrubs, and woody climbers in India at about 5,000. Very many, however, of these are merely of botanical interest, and as termites make short work of most Indian softwoods, we may feel assured that no important woody species has been omitted. There is a short account of Indian grasses, many of which are of commercial importance for fibres, paper making, and other purposes; while the account of the Indian Bamboos is extremely good, and probably includes all valuable species, as the author has specially studied this subject.

Criticism of the matter contained in this book is hardly called for, considering the great amount of labour which Mr. Gamble has bestowed on it, and the fact that he is probably better qualified than any other person for the task. I should like, however, to make a few remarks regarding the introduction of the Sweet Chestnut into the Indian Hills. This tree grows well in Dehra Dun, and bears fruit which is sold in the bazaars, and its further introduction would afford cheap food for the people, as it does in the south of Europe. Mr. Gamble notes that the fruit is not of the size and quality of that produced in Europe, but the fine Chestnuts grown in Spain and the south of France come from a grafted variety, which will not grow in England. Just as the wild Indian Walnut-tree produces worthless fruit and good timber, so the wild Castanea sativa produces good timber but only small fruits. Why does not the Indian Government procure grafted plants of the fruit-producing variety, and plant them in suitable localities in the Indian hills? Mr. Gamble names this tree C. vulgaris; it is generally known as C. vesca, but the *Index Kewensis* names it C. sativa.

As regards the form of the manual, the printing is excellent, and so are the reproductions of ninety-six photographic enlargements (3½ × 1) of transverse sections of wood. These are similar to the sections of European woods in Prof. Boulger's *Manual of Wood*, and are due to the initiative of Mr. Barber, formerly Instructor in Botany at the Royal Indian Engineering College, and now Director of the Botanical Survey of Southern India. They were prepared by Mr. Deane from some of Dr. Nordlinger's wood-sections. Four plates illustrating forest growth in India are given, but these are poor, and do not add much to the interest of the book. It is hard to say anything to detract from the merit of this excellent manual, but there is an insufficient margin to the pages, and the binding is of a flimsy nature, and not likely to last, as did that of the first edition, for twenty years and more. There are three excellent indices for scientific, English, and vernacular names of the species described. *W. R. Fisher, Cooper's Hill.*

ENQUIRY.

WILL some reader of the *Gardeners' Chronicle* kindly inform "A. J. A.," as to the parentage of the following Sarracenias, viz., S. Farnhami ×, and S. Sanderiana ×.

ROBIN HOOD AND THE KEITH BOILERS.—Will some of our readers obligingly furnish their experiences for garden purposes of the two sorts of boilers whose names are given above.

* Earwigs.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period Dec. 28, 1902, to Jan. 3, 1903. Height above sea-level 24 feet.

DECEMBER 28 TO JANUARY 3, 1902-3.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR. At 9 A.M. Dry Bulb.	Wet Bulb.	DAY. Highest.	NIGHT. Lowest.	RAINFALL.	TEMPERATURE OF THE SOIL at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	LOWEST TEMPERATURE ON GRASS.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 28	S.W.	45·9	41·9	47·9	45·8	0·20	44·9	45·7	47·0	40·8
MON. 29	S.W.	37·4	36·0	41·6	34·0	...	43·4	45·8	47·0	27·7
TUES. 30	S.W.	36·0	33·9	40·9	34·2	0·14	40·7	45·0	47·0	26·9
WED. 31	W.S.W.	37·8	36·5	41·9	33·5	...	39·4	44·1	47·0	24·1
THU. 1	S.W.	30·2	29·7	45·1	27·2	0·11	38·6	43·3	46·8	17·3
FRI. 2	S.E.	44·9	44·1	52·4	29·6	0·05	37·7	42·7	46·7	19·2
SAT. 3	S.W.	49·2	45·1	50·3	44·5	0·10	40·6	42·6	46·3	36·5
						Tot				
MEANS	...	40·2	38·2	45·7	35·5	0·60	40·8	44·2	46·8	27·5

Remarks.—Another week of dull, dark, showery weather, with a low temperature generally. A heavy hailstorm, accompanied by thunder and lightning, passed over the district on the 3rd inst.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Jan. 3, is furnished from the Meteorological Office :—

"The *weather* during this period was of a very unsettled type generally. During the earlier half of the time rain was of very frequent occurrence in the south, and rain, hail, or snow in the more northern districts, while later on, when the air became milder, the rain extended to all districts. Thunderstorms were experienced at some Scotch stations on Sunday (Dec. 28), and on Saturday (Jan. 3) sharp thunderstorms, accompanied by heavy hail, occurred in many parts of England and the north of Ireland.

"The *temperature* did not differ greatly from the mean, but was a little below it in Ireland and Scotland, and a trifle above it in most English districts. The highest of the maxima were recorded on Jan. 1 in Ireland, on the 2nd over England, and on irregular dates in Scotland. They ranged from 55° in Ireland, S., 54° in the Midland Counties and the Channel Islands, and 53° in England, S. and S.W., to 47° in Scotland, E. The lowest of the minima were registered, as a general rule, during the middle or latter part of the week. In Scotland, E. the temperature fell to 14°, and in Scotland, N. to 21°, but elsewhere the lowest readings varied from 24° in England, S., E., and N.W., to 29° in Ireland, N. and England, N.E., and to 36° in the Channel Islands.

"The *rainfall* was more than the mean in all districts excepting England, E. In nearly all the western and northern parts of the kingdom the excess was large.

"The *bright sunshine* exceeded the mean amount in all the English districts, and also in Scotland, W.; elsewhere it was deficient. The percentage of the possible duration ranged from 29 in England, S.W., and 28 in England, E., to 19 in Scotland, W., 17 in Ireland and in Scotland, E., and to 4 in Scotland, N."

THE WEATHER IN WEST HERTS.

AN exceptionally warm week. On several occasions the temperature in the middle of the day was 12° or more above the average for the time of year. The ground has now become very warm, the temperature at 2 feet deep being 3°, and at 1 foot as much as 6° warmer than is seasonable. Rain fell on all but one day, and to the aggregate depth of 1½ in., making this the wettest week recorded here since December 18, 1901. On the 4th, light rain was falling continuously for eighteen hours, and on the 3rd, shortly before 8 A.M., there was a short but very sharp shower of rain and hail. During the five minutes that it lasted, the rate of fall was about an inch per hour. The sun shone on an average for only about an hour a day. The winds varied greatly in strength, but were, as a rule, unusually high. Notwithstanding the frequent rainfall, there was less than a seasonable quantity of moisture in the air. The last Rose-bloom of the season was blown to pieces by the high wind on the 30th ult., or three weeks later than the average date of its destruction in the previous seventeen years. The Winter Aconite came first into flower in my garden on the 5th; this is the earliest date I have yet recorded here during the sixteen years over which my observations extend.

DECEMBER.

In the last sixteen years there have been only three other Decembers as warm as the past month. There occurred ten cold days early in the month, but during the rest of it the weather remained continuously warm. The exposed thermometer never showed more than 17° of frost, which is a high extreme minimum for December. Rain fell on fifteen days to the total depth of 1½ in., which is not much more than half the average for the month. There were a few light falls of snow and sleet, but at no time was the amount deposited sufficient to cover the ground. This was the most gloomy December for six years. The winds proved, as a rule, unusually high, but on only one day was a gale recorded. During the cold period of the month the winds came almost entirely from some point between north and east. In only three of the last sixteen years has the atmosphere been, on the whole, so dry.

THE WEATHER OF THE PAST YEAR.

All the months of the summer half of the year were more or less cold, but during the rest of the year there occurred only one unseasonably cold month, and that was February. In the last forty-six years there have been only two other years at Berkhamsted with as scanty a rainfall, viz., 1884 and 1898. This was also, with two exceptions, 1833 and 1889, the most sunless twelve months recorded here during the last sixteen years.

OUR UNDERGROUND WATER SUPPLY.

The deficiency in rainfall for the first three months—that is to say, since the winter half of the drainage year began—amounts to exactly 3 inches, which is equivalent to a loss of rain-water on each acre in this district of as much as 68,0.0 gallons. Unless the first three months in the current year prove very wet, the amount available for our underground water supply must once more prove unusually limited. *E. M., Berkhamsted, January* 6, 1903.

MARKETS.

COVENT GARDEN, January 8.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Anemones, per dozen bunches	2 0-	3 0
Asparagus Fern, per bunch ...	1 0-	2 6
Azaleas, p. dozen	4 0-	6 0
Bouvardias, per dozen bunches.	6 0-	8 0
Callas, per dozen	4 0-	5 0
Camellias, per dozen	2 0-	3 0
Carnations, per bunch	1 0-	4 0
Chrysanthemum, various, per doz. bunches ...	6 0-	18 0
Daffodils, p. doz.	10 0-	12 0
Eucharis, per dozen	2 0-	3 0
Freesia, per doz. bunches ...	2 0-	3 0
French Fern, per doz. bunches ...	0 4-	0 6
Gardenias, per box	1 6-	2 0
Lilium album, per dozen blooms ...	1 6-	2 6
— auratum, per bunch ...	2 0-	4 0
— longifolium per bunch...	4 0-	6 0
Lily of the Valley, pr. dz. bunches	6 0-	12 0
Mimosa, p. bunch	0 9-	1 0
Maidenhair Fern, per dozen bunches ...	4 0-	6 0
Marguerites, yellow, per dozen bunches... ...	1 6-	2 0
Mignonette, per dozen	2 0-	3 0
Narcissus, dozen bunches... ...	1 6-	5 0
Orchids (Cattleya) dozen blooms...	12 0-	15 0
Parma Violets ...	2 0-	3 6
Pelargoniums, Scarlet, dozen bunches... ...	6 0-	8 0
Roman Hyacinths, dozen bunches	6 0-	12 0
Roses, Christmas, per dozen ...	1 0-	1 6
— Mermet ...	3 0-	6 0
— various, per bunch... ...	1 0-	2 0
— white, bunch.	2 0-	3 0
Smilax, per dozen trails	1 6-	2 6
Tuberoses, per doz. blooms ...	0 8-	1 0
— per bunch ...	3 0	...
Tulips, all colours, per bunch ...	0 6-	1 6
Violets, per dozen bunches ...	1 6-	2 0
White Lilac (Fr.)	3 6-	4 0

PLANTS IN POTS &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Adiantums, per dozen	4 0-	8 0
Aralias, per doz.	4 0-	6 0
Arbor Vitæ, per dozen	9 0-	18 0
Aspidistras, per dozen	18 0-	36 0
Aucubas, per doz.	4 0-	8 0
Azaleas, each ...	2 0-	4 0
Begonia Gloire de Lorraine ...	8 0-	10 0
Chrysanthemum, various	4 0-	18 0
Crotons, per doz.	12 0-	24 0
Cyclamen, p. doz.	10 0-	18 0
Daffodils, per doz.	6 0-	10 0
Dracænas, var., per dozen ...	12 0-	48 0
Ericas, per dozen	9 0-	24 0
Euonymus, vars., per dozen ...	4 0-	6 0
Evergreen, p. doz.	4 0-	18 0
Ferns in variety, per dozen ...	4 0-	30 0
Ficus elastica, per dozen	9 0-	24 0
Genistas, p. doz.	8 0-	10 0
Hyacinths, p. doz.	12 0-	15 0
— Roman ...	8 0-	9 0
Lily of the Valley, per dozen ...	10 0-	12 0
Lycopodiums, pr. dozen	4 0-	5 0
Marguerites, per dozen	6 0-	8 0
Orange-trees, each	3 0-	7 6
Palms, various, each	3 0-	20 0
Poinsettias, doz.	6 0-	12 0
Pteris tremula, per dozen	4 0-	8 0
— Wimsettii, per dozen	4 0-	8 0
— major, per dz.	4 0-	8 0
Solanums, p. doz.	6 0-	12 0
Tulips, red, box	1 0-	4 0
— white, p. box	1 0-	4 0
— yellow, p. box	1 0-	4 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per sieve ...	2 0-	3 6
— Blenheims, per bushel ...	4 0-	5 0
— dessert, various, per bush.	4 0-	6 0
— culinary, Wellingtons, various cookers, per bush. ...	4 0-	6 0
— Californian, cases	8 0-	10 0
— American, per barrel ...	10 0-	18 0
Bananas, bunch	7 0-	10 0
— loose, dozen	1 0-	1 6
Chestnuts, French, per bag ...	7 6-	12 0
— Italian, per bag	18 0	—
Cobnuts, per lb. .	0 3½	—
Cranberries, per case	15 0	—
— keg	2 6	—
Grapes, Almeria, per doz. lb. ...	4 0-	6 0
— Alicante, lb. .	0 8-	1 2
— Colman, A., lb.	1 6-	2 0
— — B., per lb. .	0 6-	1 0
— Muscats, A., lb.	4 0-	5 0
— — B., per lb.	1 0-	2 0
Lemons, per case	8 0-	12 0
Lychees, packet .	1 0	—
Oranges, case.....	10 0-	13 0
Pears, per crate...	10 6-	17 6
— stewing, per crate ...	5 0	—
Pines, each ...	1 6-	3 0
Walnuts, Naples, cwt.	45 0	—

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen ...	4 0	—
— Jerusalem, per sieve ...	1 0-	1 6
Asparagus, sprue, bundle ...	0 9-	0 10
— Paris Green...	5 0-	5 6
Beans, dwarf, lb.	2 0	—
— Madeira, bkt.	2 0-	3 0
Beetroots, bushel	1 0-	1 3
Brussels Sprouts, per sieve ...	0 9-	1 3
Cabbage, p. tally	1 6-	2 6
Carrots, doz. bun.	1 6-	2 0
— bag (washed).	2 0-	2 6
Cauliflowers, doz.	1 0-	2 0
Celeriac, per doz.	2 6-	3 6
Celery, per dozen bundles... ...	8 0-	14 0
Chicory, per lb.	0 4-	0 5
Cress, per dozen punnets ...	1 3	—
Cucumbers, doz.	8 0	10 0
Endive, per doz.	1 8	—
Garlic, per lb. ...	0 3	—
Horseradish, foreign, p. bunch	1 3-	1 6
Leeks, p. dz. bun.	1 0-	1 6
Lettuces, Cabbage, per dozen ...	1 0-	1 4
Mint, doz. bun. ...	5 0	—
Mushrooms, house, per lb.	0 6-	0 9
Onions, bag ...	4 0-	5 0
— English, cwt.	5 0	—
— foreign, case	6 0-	8 6
— picklers, per sieve	2 6-	3 0
Parsley, 12 bunch	1 6-	2 0
— sieve	0 9-	1 6
Parsnips, per bag	2 0-	2 6
Potatos, per ton	80 0-	115 0
— New Teneriffe, per cwt. ...	12 0-	14 0
— new, Kiduey, per lb. ...	0 1½-	0 2
Rhubarb, Yorks., per doz.	1 3-	1 6
Salad, small, punnets, per doz....	1 3	—
Savoys, tally ...	3 0-	4 0
Seakale, per doz. punnets ...	10 0-	12 0
Shallots, per doz.	0 2	—
Spinach, English, bushel	2 6-	3 0
Tomatos, Canary, deeps	2 6-	4 0
Turnips, p. dozen	1 8-	2 0
— bags	1 0-	2 0
Watercress, per doz. bunches...	0 6	

POTATOS.

Various samples, 70*s.* to 90*s.* per ton; Dunbars, red soil, 105*s.* to 115*s.* *John Bath*, 32 & 34, *Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

GLASGOW, *January* 7.—The following are the averages of the prices during the past week :—Apples, American Baldwins, 11*s.* to 14*s.* per barrel; Canadian ditto, 14*s.* to 16*s.*; ditto, Kings, 20*s.* to 26*s.*; Greenings, clear fruits, 15*s.* to 18*s.*; various high-class red, 14*s.* to 18*s.*; green, 16*s.* to 18*s.*; Oranges, Valencias, 420's, 7*s.* to 18*s.* per box; large ditto, 9*s.* to 12*s.* ditto; 714's, 8*s.* to 9*s.* ditto; Lemons, 4*s.* to 5*s.* per box, and 7*s.* to 12*s* per case; Grapes, English, 2*s.* to 3*s.* per lb.; Scotch ditto, 9*d.* to 2*s.* 6*d.* lb.; Almeria ditto, 12*s.* to 20*s.* per barrel; Mushrooms, 1*s.* per lb.; Onions, Valencia, 5*s.* to 7*s.* per cwt.

LIVERPOOL, *January* 7.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Main Crop, 3*s.* 5*d.* to 4*s.*; Up-to-Date 3*s.* to 3*s.* 9*d.*; Bruce, 3*s.* 3*d.* to 3*s.* 9*d.*; Turnips, 6*d.* to 8*d.* per dozen bunches; Swedes, 1*s.* 2*d* to 1*s.* 4*d.* per cwt.; Carrots, 5*d.* to 7*d.* per dozen bunches, and 2*s.* 3*d.* to 2*s.* 9*d.* per cwt.; Onions, English, 4*s* 6*d.* to 6*s.* 6*d.* do.; do, foreign, 2*s.* 6*d.* to 3*s.* 6*d.* per bag; Parsley, 8*d.* to 8*d.* per dozen bunches; Cauliflowers, 2*s.* to 2*s.* 6*d.* per doz.; Cabbages, 6*d.* to 10*d.* do.; Celery, 6*d.* to 1*s.* 3*s.* do. *St. John's.*—Potatos, 1*s.* per peck; Grapes, English, 1*s.* 6*d.* to 2*s.* 6*d.* lb.; do., foreign, 6*d.* do.; Pines, English, 4*s.* to 6*s.* each; Apples, 2*d.* to 4*d.* per lb.; Tomatos, 4*d.* to 6*d.* per lb.; Asparagus, 1*s.* per bundle; Cucumbers, 2*s.* each; Mushrooms, 1*s.* 4*d.* to 3*s.* per lb. *Birkenhead:* Potatos, 10*d.* to 1*s.* per peck; Grapes, foreign, 6*d.* to 8*d.* per lb.; Mushrooms, 1*s.* per lb.; Filberts, 8*d.* do.

SEEDS.

LONDON, *January* 7.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that a strong and cheerful feeling now animates the seed market, and especially as regards Red Clover-seed, holders exhibit great and increasing confidence. This article, now the most favoured one, comes to-day dearer from all quarters; and in view of the light stocks and short crops, it does not look improbable that for once the supply may fall short of the demand. Meantime, Trefoil, Alsyke, and White command full prices, but Ryegrasses are quiet. There is very little inquiry just now for either Mustard or Rapeseed. Winter Tares are held for more money. Rye is, however, neglected. Canary-seed marks a further upward step on its way to three figures. Turkey now cables 85/3 cif. Other bird-seeds are without interest. Blue Peas continue slow of sale, but Haricot Beans register a further advance. In the dearth, in fact, almost famine of German Scarlet Runners, there is a good sale for Dutch Giant Beans, a very few of which are still obtainable at 22*s.* per bushel.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending Jan. 3, 1903, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1902.	1903.	Difference.
	s. *d.*	*s.* *d.*	*s.* *d.*
Wheat	27 7	25 0	— 2 7
Barley	26 7	23 11	— 2 8
Oats	19 10	16 10	— 3 0

Answers to Correspondents.

ARTICLES ON LANDSCAPE GARDENING: *D. H. S.* None have appeared in recent issues of the *Gardeners' Chronicle*. You would have to go back to the eighties, copies of which are not in stock.

BASIC SLAG AND SUPERPHOSPHATE OF LIME: *F. H. B.* These substances are, as top-dressings of 3 or 4 oz. per square yard, useful on grassland in increasing the growth of the finer grasses, which in turn drive out the coarser-growing species and weeds.

BEGONIA-LEAVES BLOTCHED: *A. O. W.* We believe the blotches are the result of drip or of precipitation of moisture, due to sudden lowering of temperature.

BOOKS: *C. L.* We do not know the price. Apply to the publishers, Messrs. Sutton & Sons, Reading.—*E. C.* The second volume, only, of Elizabeth Blackwell's *Herbal*, published in 1739, is only of value as a curiosity. Some second-hand bookseller might purchase it for a small sum.

BROAD-LEAVED GRASS: *F. H. B.* Can you not send a specimen plant? Perhaps you mean Dactylis glomerata.

CINERARIAS: *A. P.* The injury to the leaves is not due to a fungus or to insects, but probably to some adverse atmospheric influence, or to fumigation. Keep the atmosphere of the pit as sweet as possible, and by affording fresh air on every favourable opportunity the leaves will be strengthened, and made less liable to injury or disease.—*H. S.* We cannot tell unless we examine a specimen. Possibly it is the work of eelworms, which may be detected by the presence of wart-like excrescences on the roots.

COBNUTS AND FILBERTS: *W. J. S. G.* The first is a roundish oblate nut, the second of an elongated oval shape. There are numerous varieties of each.

FRUIT TRADE JOURNAL: *A. M. C.* We do not know.

GALVANISED IRON BANDS TO SUPPORT ADDED SOIL TO A POT ROSE: *Constant Reader.* The galvanised metal would do no harm, so far as we know of.

GRASSES FOR MENDING THE SURFACE OF A RACECOURSE: *F. H. B.* If the land is to be laid up for hay, Avena elatior is a good early-growing grass, suitable for clayey land, if not too wet; it should be sown in the autumn. Cynosurus cristatus, Dactylis glomerata, good on stiff, damp soils. Festuca pratensis; it attains maturity in three years. F. ovina is a small, succulent grass, useless for hay, does well on chalk, does best if not highly manured; and F. duriuscula. You should apply to some of the specialists who deal in grass-seeds for different purposes.

MAGNUM BONUM: *W. J. S. G.* The words mean (1) large and (2) good.

MOSS AND LICHENS ON FRUIT-TREES: *K. R. H.* The ordinary alkali or soda-wash is an effectual cleanser; made by dissolving ½ lb. of washing soda in a 3-gallon-pailful of boiling water.

MUSA CAVENDISHI, WHEN TO COMMENCE TO GATHER THE FRUITS: *Macdaunder.* The bunch begins to ripen at the base, or thick end, which is eventually uppermost, and it is at that part you should begin to gather. The fruit is better if left on the plant till it is fit to eat. Unless you fear the dampness of the stove at this season will cause rotting, there is no need to remove the bunch from the plant—in fact, dryness tends to preserve the fruit from decay, and to improve flavour. The present is not the best season in which to have Bananas in fruit.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Tib.* 1, probably the leaf of a Gesnerad—send when in flower; 2, Euphorbia Jacquiniæflora.—*E. G.* 1, Eriobotrya japonica, the Loquat; 2, Tecoma jasminoides; 3, Hibiscus rosa sinensis; 4, Cissus discolor.—*A. J. & G. P.* A rather distinct form of Cypripedium Dayanum.—*W. Davies.* 1, a variety of Thuya orientalis; 2, Cupressus Lawsoniana; 3, Pseudotsuga Douglasii; 4, Cupressus Lawsoniana erecta viridis; 5, Thuya gigantea; 6, Thuya gigantea.—*W. W. G.* Polypodium vulgare.—*Arton.* 1, Pteris tremula; 2, Pteris cretica albo-lineata; 3, Cyrtanthus lutescens; 4, Oncidium flexuosum; 5, Oncidium excavatum; 6, Stanhopea graveolens.—*F. T. H., Southampton.* 1, Catasetum macrocarpum; 2, Gongora quinquenervis; 3, Gongora cassidea.—*Victor.* 1, Bulbophyllum auricomum; 2, Bulbophyllum hirtum.—*O. T.* 1 and 2, both known in gardens as Carex japonica variegata, the more slender being often called "gracilis"; 3, a Ginger-wort. Send in flower; 4, Dichorisandra vittata; 5, Abutilon Savitzii; 6, Bougainvillea glabra variegata; 7, Elæodendron orientale.

NOVELTIES OF 1902: *J. Coene.* We have not so much space at our disposal as would permit of every certificated plant being mentioned; a selection has therefore to be made.

ORCHID BLOOMS WITHERING: *A. B. C.* Failure to expand the buds of Phalænopsis, and the withering of the flowers of those and other Orchids, similar to the specimens sent, is a common thing at this season of the year in or near towns. In the neighbourhood of London and other towns where fogs prevail, the influence of foggy weather is the cause assigned. But it is not difficult to understand that similar effects might be produced on Orchid flowers, the inflorescences of which were probably commenced early enough to admit of their blooms being expanded under favourable conditions some weeks ago, but which could not develop through lack of light, and especially sunlight. Of course, such mischief might result from excessive heat, and defective ventilation, or from the hot-water piping being newly blacked with improper colouring; but absence of light is most probably the cause of the trouble you complain of.

PALMS DISEASED: *A. B., Epping.* The fungus is Graphiola phœnicis. Burn the affected leaves, and keep your plants clean, using a fungicide if necessary.

PAYMENT OF WAGES DURING ILLNESS: *Constant Reader.* The gardener who falls sick cannot claim, as a right, payment of his wages during his absence from his employer's garden; but we doubt if many employers go to the length of paying no wages at such times, if the man's character is good, and his illness of no great length.

PELARGONIUMS: *Preston.* The plants have grown when they should have been at rest, and have collapsed from too much heat and moisture, and too little ventilation. The Ivy-leaved varieties are more hardy.

POA PRATENSIS ROOTS: *F. H. B.* Not injurious to turf.

POTASH MANURES: *F. H. B.* Woodashes—a weak form of potash, kainit, nitrate of potash, sulphate of potash, and carbonate of potash. All of them are the safer for being mixed with leaf-mould, bone-meal, road scrapings, or rotted Couch-grass roots. The sulphate is too dear for general use on a large scale.

PRIMULA VERTICILLATA: *R. V. & Son.* The grubs are those of a weevil; and you know how destructive they are, and how to deal with them, as well as we can tell you.

SAMPLES OF GARDEN SOILS, &c.: *J. Barker.* We do not believe it is possible to grow even passable kitchen-garden crops in such soil as that sent, unless it undergo great amelioration. The soil is so compact, and so destitute of stones, sand, humus, or anything that would assist in its aëration, that no plant could make healthy growth in it. It should be heavily dressed with half-decayed stable-dung, being content for the first year or two to bastard-trench it, going deeper with the digging and manuring in the following years until a depth of 2½ feet to 3 feet is reached. You would find that heavy dressings of coal-ashes, mortar rubble, quick lime, road scrapings, sand, ballast, and superphosphate of lime, are of great benefit to the crops. The drainage may also be faulty, and this should be put into good order. If you could cultivate the crops of Cabbage, Brussels Sprouts, and Brassicas generally, in an adjoining field, you would, in the course of a few years get rid of the slime fungus, Plasmodiophora, by a process of starvation, otherwise matters are sure to get worse, the seedlings getting infected in the seed-beds. If it were possible to lay part of the garden fallow for the better part of a year, such portions could be heavily dressed with gas-lime, and afterwards afforded dressings such as those named above. Whale-oil is a good remedy against American Blight on Apple-trees, but more than one application is needed; moreover, the roots of the trees should be laid bare and drenched with soap-suds, fresh soil being used to cover them. This must be done more than once a year.

THE SLOE: *E. E. K.* The true Sloe, Prunus spinosa, is, we presume, blackish-blue. The so-called white-fruited Sloe is the common Bullace.

TOP-DRESSING ON HEAVY LAND: *F. H. B.* The proposed sea-sand is good; also fine coal-ashes, wood-ashes, road-scrapings, ditch-scourings, mortar-rubble finely broken, partially decayed stable-dung, &c.

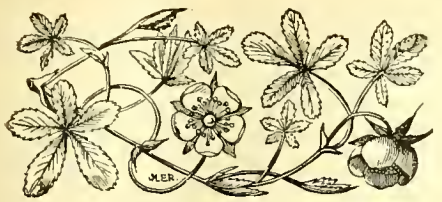
TRIFOLIUM REPENS: *F. H. B.* This plant being a Clover, would not be included among grasses in a work on Gramineæ.

TULIP-TREE (LIRIODENDRON) TULIPIFERA: *G. T. R.* Stratify the seeds in sand or sandy loam in a garden-frame, and prick off into beds when the first pair of leaves appear, shading them for a time with pea-sticks laid on a wooden frame. Only a certain percentage of the seeds will vegetate.

VINE ROOTS: *H. J. C.* Found dead, cause unknown. No Phylloxera.

COMMUNICATIONS RECEIVED.—G. G., Paris—A. Cogniaux, Nivelles—W. W. & Son—A. D.—A. S, Boston, Mass.—W. Rider & Son—B. Cavanagh, Madras—F. M. Bailey, Brisbane—J. C. C.—Dodd, Mead & Co., New York—Sutton & Sons.—R. P. B.—A. Williams.—G. W. E.—J. C. T.—A. C. F.—A. F. G.—C. W.—J. L.—C. T. D.—E. C.—J. A. C. Cheales.—S. A.—E. J.—J. O'B.—E. S.—A. B.—J. W.—C. B. Kuffmann, Melbourne.—N. Sinclair.—J. F.—G. Roy.—W. L. W.—Vicomte de St. Leger, Paris—J. H. V.—Hortus—H. B. S. C.—The Arnold Arboretum—W. W., Harefield Nurseries—S. B. B.—J. Armit.—J. B. & Sons.

Group of Platyceriums in the Collection of Messrs. John Hill and Sons, Edmonton.



THE

Gardeners' Chronicle

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View of portion of the Italian garden at Bowood (Supplement)

MENDEL'S METHODS OF PLANT BREEDING.*

THE first hybrid plant raised by hand appears to have been recorded by Richard Bradley in 1717 as a cross between the Carnation (Dianthus caryophyllus ♀) and the Sweet William (D. barbatus ♂), having been raised by Thomas Fairchild, of the Hoxton Nurseries, near London. Since then, many hybrids and crosses in many genera have been raised by many persons in many countries. Among others, the names of Kölreuter, Knight, Herbert, Gärtner, Godron, Naudin, and Darwin stand pre-eminent; the culminating point of all these being the experiments, researches, and broad generalisations of Charles Darwin, which mark off a distinct epoch.

The new epoch seems to have begun actually in Darwin's time, though apparently unknown to himself and to his contemporaries. In 1866, about two years before Darwin published his monumental work on the *Variation of Animals and Plants under Domestication*, Gregor Mendel published at Brünn the records of his remarkable experiments in crossing distinct races of Pisum. Curiously enough, his work remained in obscurity until 1900, when it was brought to light by the researches and experiments of De Vries in Holland, Correns in Germany, Tschermak in Austria, and Bateson in England. So that although 1866 marked the beginning of the new epoch, yet it was not until the close of the nineteenth century that any marked advance was made. The "psychological moment" had then arrived, and during the past two years the progress in certain directions has been phenomenal. Experiments with various kinds of plants and animals, carried out on Mendelian lines, have yielded large numbers of facts, which on the whole practically confirm the results obtained by Mendel himself. At the same time, it is only fair to state that on every hand apparent exceptions are fairly numerous.

In face of these exceptions, and notwithstanding the many confirmations of Mendel's results by others in other kinds of plants and animals, it seems to be too early yet to regard Mendel's principles as of general application to plants and animals.

At the same time, Mendel's experiments are a great advance on what has been done before, and will probably prove a stepping-stone towards the final solution of the problems of inheritance. For the present, it may be wise to suspend our judgment and wait for further facts; but while we wait, let us also work and help to secure those further facts, altogether regardless of whether they happen to confirm or deny the principles laid down by Mendel.

In order to accomplish this, it will be necessary to work strictly on Mendelian lines, and to study Mendel's methods with great care. Mendel, after surveying the work of his predecessors, started with a clear conception of what he wanted to investigate, and arranged his experiments accordingly—

(1) He wished to determine the number of different forms under which the offspring of hybrids appear.

(2) To arrange these forms with certainty according to their separate generations.

(3) To definitely ascertain their statistical relations.

The careful judgment, skill, and forethought which guided Mendel in carrying out his experiments were evidently the products of a master mind, and his experiments may, for some time to come, serve as a model for the hybridist who wishes to attack the perplexing problems of heredity.

The object of this paper is to give a brief outline of Mendel's methods, and to endeavour to show how superior they are to the methods of his predecessors. The writer does this also in the hope that the hybridists and breeders of the New World, with their progressive ideas, their many opportunities, their vast system of experiment stations, and their practical knowledge of breeding, will take up and test the matter on a much larger scale than we can ever hope to do in the Old World, and thus help to bring the question to a speedy and definite issue. So convinced is the writer of the superiority of Mendel's methods, that he has already in hand a large number of experiments on Mendelian lines in Pisum, Lathyrus, Papaver, Primula, Berberis, and Paphiopedilum (Cypripedium), also in various breeds of poultry and rabbits, the results of which he hopes to publish in due course.

MENDEL'S METHODS.

1. *Single Characters.*—Perhaps the most fruitful source of confusion in the older records of experiments in cross-breeding has been the selection of the individual plant as the unit for the results. The individual plant is, as a rule, made up of a large number of characters—organs, structures, whatever one may term them—distinctly marked off from one another, having points of difference, great or small, in form and colour. In working out the inheritance of specific characters in Orchid hybrids in 1899, the writer became much impressed with the possibilities of variation in individuals when a number of characters in each were considered together. Some characters showed dominance of one parent, some of the other, while others were intermediate. When these several variations occurred in twenty or more characters, the possibilities of variation among the individual hybrids became very considerable; so much so, that taking the individual as the unit, the results were quite unmanageable. Since then the writer has been compelled to consider each single character on its own merits. It is true, that correlation of characters in many cases serves to modify this result to some extent, but in the case of the Orchid hybrids in question, the correlation was not very evident.

These experiences probably go far to explain the many apparent contradictions in the older records, some observers taking one character, and others another; the result depending entirely upon which character was observed. It follows, therefore, that in any statistics of inheritance, a definite result can only be determined by taking each character separately. Mendel was very careful to do this in his experiments with Pisum, with remarkable results.

2. *Constant characters.*—Next comes the important question of ancestry. From the earliest times it has been observed that in many instances offspring have resembled their grandparents, and even more remote ancestors, rather than their actual parents; so that in experimental crossing, if two parents be chosen, each of whose ancestry is unknown, or perhaps consists of complicated factors, the resulting offspring are either incomparable and incomprehensible, or they vary among themselves in bewildering confusion. The result in any case is chaos, and goes a long way to account for the many contradictory records which we find in the experiments carried out under the old *régime*. Mendel, carefully and skilfully, avoids this confusion in his experiments with Pisum, by crossing together only constant and fixed races, i.e., each parent has been the product of repeated self-fertilisations, so that its ancestry has been practically the same for many generations. This effectually disposes of the possible complications caused by the influence of the immediate ancestors at any rate, though how far it affects the possible reversion to more remote ancestors is difficult to say.

The writer, in his experiments with Orchids, has chosen distinct species as parents, and in this way perhaps reduces the possibilities of reversion still more. De Vries, Correns, Tschermak, and Bateson, have all for the most part followed Mendel's method by crossing constant races; and i

* Read at the International Conference on Plant-Breeding and Hybridisation, New York City, Sept. 30, 1902, by C. C. Hurst, Burbage, Hinckley.

is quite possible that some of their apparent exceptions to Mendel's results may be due to their crossing, unwittingly, more or less inconstant races. As we have seen, Mendel carefully avoided this by selecting parents of pure descent, and side by side with his crossing experiments, he was careful to carry out control experiments with the original parents by further testing their constancy and fixity through all the generations. Consequently, all his results with Pisum were uniform and without exceptions. *Charles C. Hurst.*

(To be continued.)

CHINESE CONIFERS.

[MESSRS. JAS. VEITCH & SONS, having kindly confided to me for examination the collection of Coniferous plants obtained in Central China by their collector, Mr. E. H. Wilson, I propose from time to time to call attention to some of the more interesting of these plants. Mr. Wilson's specimens are mostly excellent; some represent new or undescribed species, others are of special interest from some cause or another—indeed, all are more or less noteworthy. These notes will therefore be complementary to those published in these pages by Lindley and Andrew Murray on the Japanese species, collected by the late J. G. Veitch, and to those published by myself in these columns, on the plants sent home by the late C. Maries from Japan. The latter also formed the subject of a communication to the *Journal of the Linnean Society* in 1880, vol. xviii.

The enumeration of the Chinese Conifers by myself in Hemsley's *Index Floræ sinensis* (*Jour. Linn. Soc.*, Botany, vol. xxvi., p. 540), was unfortunately published just before the receipt of Mr. Wilson's specimens. This is the more unfortunate, as some of Mr. Wilson's specimens have not previously been described. It may also be said that young plants of most of these Conifers are growing in Messrs. Veitch's nursery at Coombe Wood, and at Kew, so that in due time we shall hope to be able to report upon them in the living condition. *Maxwell T. Masters.*]

PINUS KORAIENSIS.*

We are glad to be able to give good illustrations of this species, which has been imperfectly and confusedly described by various anthors.

The branches are greyish-brown, roughened by the scars left after the fall of the leaves. The leaves are in fives, slender, about 9 cent. long, and 3-sided. In cross-section it may be noted under a low power of the microscope that the hypoderm or layer of thick-walled woody cells beneath the epiderm is nearly wanting. The meristele or central bundle is circular or ovoid in section, surrounded by an endoderm of some twenty cells. The fibro-vascular bundle is umbranched. The resin canals are in the centre of the cortex or leafy substance of the leaf. The bud-scales are deciduous, membranous. The male flowers are small, ovoid, in sub-globose clusters. The anthers are destitute of crest, and the pollen cells as here observed and figured by Mr. W. G. Smith, two-winged.

The cones (fig. 19) are shortly stalked, pendulous, about 18 cent. long by 7 cent. wide, rounded at the base, cylindric-conic, slightly tapering towards the apex; the lower cone-scales smaller, and more markedly recurved than the upper ones; scales, from the middle and upper part of the cone are thickened near the apex, broadly triangular, more or less recurved at the tips.

The seeds are wingless. The figure of the cone given by Siebold and Zuccarini was acknowledged by the authors to be incorrect, and the specimens in herbaria are not always correctly named, on which account we are glad to figure the fine specimen collected by Mr. Wilson (n. 597!).

The species occurs in Mandshuria, Japan, China, in the provinces of Shensi, and in Corea. Mr. Wilson's specimens were collected in West Hupeh.

FIG. 18.—PINUS KORAIENSIS.
Showing shoot, foliage, male flowers, tip of leaf magnified, anther, pollen grain × 300, and wingless seed.

MARKET GARDENING.

CHRYSANTHEMUMS: SELECTING AND STRIKING THE CUTTINGS.

No time should be lost in putting in the desired complement of Chrysanthemum cuttings of approved market varieties—varieties which with generous and intelligent treatment will yield a profusion of flowers from the end of August on to November (in the absence of frost) out-of-doors, and into the new year when plants of late flowering varieties are lifted from the open ground and transplanted under glass in Cucumber and other houses on the approach of frost. Abundance of strong, short-jointed cuttings of most of the varieties which have flowered out-of-doors are now available. These should be taken off close to the ground about 3 inches in length, and inserted 3 inches apart in boxes filled with fairly light mould and surfaced with sand, making the soil moderately firm

* *Pinus Koraiensis*, Siebold and Zuccarini, *Flor. Japon.*, ii., p. 28, t. 116; Mayr, *Monog Abiet. Japan.*, i., 73, p. 3, tt. 5-6, fig. 18; Murray, *Pines and Firs of Japan* (1863), p. 6; Masters, in *Journ. Linn. Soc.*, Bot., vol. xxvi., p. 541, where references to the literature may be found.

about the cuttings in putting them in. Place the boxes closely together on strips of wood laid on a Vine or Peach-border, or any cool-house or pit that may be available at the time. Water through a rose water-pot to settle the soil about the cuttings, and allow the former to become fairly dry on the surface before repeating the operation. Cuttings thus treated will root in due course, and grow into good, sturdy plants by planting out time, the points being pinched twice during the interval.

The following are well known and thoroughly trustworthy early-flowering market varieties:—Madame Marie Massie, pink; Madame Desgraves, white; G. Wermig (syn. Yellow Desgranges), Harvest Home, red tipped with gold; Soleil d'Octobre, yellow; Queen of Earlies, white; Ryecroft Glory, good October yellow; White Quintus, pure white, the habit of growth being everything that could be desired; A "Mum," Source d'Or, bronze; Lady Selbourne, white; Madame la Comtesse Foucher de Cariel, bronze; O. J. Quintus, fine October pink. Late varieties for transplanting under glass:—Dazzler, fine crimson (November); Elaine, grand white (November); Lady Osborne, light pink (December); Niveus, white; W. H. Lincoln, yellow; La Triomphante, pink; and Mrs. J. Thompson is a good December white. All being well, a cultural note as to the planting out and subsequent treatment of the plants for market purposes will be contributed to the *Gardeners' Chronicle* in March.

Raising Cucumber Plants.

Prepare the necessary number of 3-inch pots forthwith for the reception of Cucumber seed, by placing a piece of crock hollow side down over the hole in the bottom of the pots, and fill the latter three-parts with a mixture of light, fresh, loamy soil, and well-decayed stable-manure, in about equal parts; deposit one seed in each pot, cover lightly with soil, and press gently. Stand the pots closely together in a house in which a minimum temperature of 70° is maintained, and cover the pots with paper, the paper having been placed in the house twenty-four hours before being used. Examine the soil two or three days after sowing, and if found to be rather dry on the top, afford a small quantity of tepid water through a spray distributor. As soon as the young plants appear through the soil, remove the paper and transfer them to a shelf near the roof-glass, and top-dress with slightly-warmed compost as soon as the plants have attained a little strength and thickness of stem, filling the pots up to the rims in two separate top-dressings. Put a small stick to each plant, and shift into 32's before the roots get matted, using the same kind of compost as that indicated above. In the meantime the houses should be put in order for the reception of the plants a few weeks hence. If not already done, the soil forming the old ridges should be wheeled out, and flowers-of-sulphur burnt in the houses with a view to destroying any insect enemies that may have effected a lodgment therein during the last nine or ten months. This done, cleanse the glass and woodwork with water, and the brickwork with a wash made from quicklime; then strew some quicklime over the floor-space on which the ridges are to be formed, cover this limed space with freshly-cut turves, grassy side down, digging 6 or 9 inches deep of the soil from which the turf is taken, using this and peat manure in the proportion of four parts of the former to one of the latter, to form the ridges, when well mixed. At first, a ridge about 15 inches wide and 9 inches deep will be sufficient for the plants, if set out at 2 feet apart. Make a deposit of soil, to be used later at intervals when moulding up becomes needful, up to within a few weeks of the time of the plants having yielded all that it is possible in the way of Cucumbers. Rochford's Market is still a general favourite with growers. *H. W. Ward.*

APPLIED BOTANY.

One of the four meetings arranged by the Technical Education Board of the London County Council in connection with its annual conference of science teachers was devoted to Botany. Hence, on the morning of January 10, Professor Farmer presided at the South Western Polytechnic. He had much to say on the value of botany, even of a systematic kind, if taught properly, as a means of training, and in his subsequent remarks alluded to the economic value of the science.

One of the points which he brought forward in this connection was that of grass below Apple-trees, which often delayed their bearing as long as seven years. He thought that perhaps in interesting children in Nature the question of the removal of oxygen by the grass need not be raised, but that the absorption of water by the

FIG. 19.—CONE OF PINUS KORAIENSIS, COLLECTED BY MR. WILSON.
(SEE P. 34.)

herbage that would otherwise get to the roots might well be studied.

Miss Lilian Clarke, B.Sc., who gave an address on "The Rational Teaching of Botany," explained that she was not responsible for the title. She described minutely how the school garden had been utilised, not merely for growing plants various orders, but for Nature-study work on the pollination of plants. The way in which plants were successfully grown in solutions containing all the necessary food constituents was gone into, and the ill effects of leaving out iron, magnesium, and so on, alluded to. Great enthusiasm is shown in connection with this work, which should, in spite of Miss Clarke's contention—as was pointed out in the discussion—be considered as above the plane of Nature-study. The excellent work done upon the rambles, the drawing of natural objects, and other correlated pursuits of a Nature-study character at James Allen's school were also characterised.

The second address was on "Experimental Plant Physiology," and was given in connection with a remarkable exhibition of experiments in the Natural Science Laboratory of the South-Western Polytechnic, by Mr. H. B. Lacey, who is responsible for the teaching there. We should very much like to describe in detail many of the simply-constructed but most effective pieces of apparatus, but must for the present content ourselves with singling out the contrivances for demonstrating the growth in height of a plant, the revolving water-wheel for holding seedlings, and the dark box for etiolation experiments, which could also be adapted for growing plants under coloured light with more success than in smaller jacketted glass vessels, where the increased temperature of the air may give rise to growth which might be set down to other causes.

THE ROSARY.

PLANTING NEW BORDERS.

In making new borders of Roses for the decoration of the mansion and grounds, the staple soil should be taken out to the depth of 18 inches, putting on the bottom a layer 4 inches thick of good clay, unless there is a clay subsoil; then fill in with new soil composed of six parts of fresh loam, dug from an old pasture, and two parts of good rotten dung. These should be well mixed together, and then filled in to the depth of 14 inches. After planting at distances from 18 inches to 2 feet apart, according to the habits of different varieties, mulch the surface of the border with some good rotten dung, which will serve as a protection to the roots of the Roses and as a nutrient. Upon receiving the plants from the nursery, on no account allow them to be exposed to winds before planting. Everything should be made ready for planting before they arrive, that they may be put into the ground directly.

There are so many very fine varieties in Teas Hybrid Teas, and Hybrid Perpetuals, to meet the tastes of all lovers of this beautiful flower, that I strongly advise planters of any or all sections to arrange the varieties in groups, say at least a dozen in each colour, so as they do not clash one with the other. In selecting, be sure to get those varieties most reliable for continuous blooming, and varieties that travel best as cut flowers, for we must not forget the needful supply of blooms to the town house as well as the country mansion. After these groups are thoroughly established, you will have no difficulty in furnishing a dinner-table or drawing room with blooms all of one colour. The Rose is then one of the most useful decorative flowers. What has a better effect than a good and well arranged vase of the variety Mrs. John Laing, or Madame Lambard? But there are many other well-known varieties equally effective that I need not mention. *F. Capp, gardener to Hugh Andrews, Esq., Toddington, Gloucestershire.*

FOREIGN CORRESPONDENCE.

PINES IN THE AZORES.

While on a visit to St. Michaels, Azores, recently, I was much interested in the Pineapple cultivation which is extensively carried on in that island, and I was particularly struck with the method usually employed by the growers for hastening the plants into flower. When the plants have reached an advanced stage of growth, and are apparently fully grown, a slow smouldering fire of damp and green leaves is made in the glasshouses and kept up for about eight or ten days, not longer. The windows and doors are kept securely closed during this time so that the atmosphere in the houses becomes densely charged with smoke. It is generally believed that the smoke stimulates the plants to bloom, and not the heat generated by the fire, which is said to be not appreciable. Should the plants prove stubborn, the process is repeated after an interval of several weeks; but one application of smoke is, I understand, generally sufficient. I was told that the life of the plant was artificially shortened in this manner, from eighteen to eleven months. The plants are timed to attain their full growth in August or September, the "smoke" is then given, and the fruit matures in December or January, when the best values are obtained. The discovery of the smoking process, which dates back to more than a decade, was made quite accidentally; a planter having made a smouldering fire in one of his pineries for the purpose of destroying an insect pest, was surprised to observe that his plants burst into flower prematurely.

I should be glad if you, or any of your readers, could throw any light on the physiology of the process, and whether anything similar is employed in Pineapple cultivation elsewhere. *M. Grabham, Madeira.*

IS LILIUM AURATUM A HYBRID?

In a recent number of the *Garden* it was said: "It would be a strange thing, but one not inherently impossible, if Lilium auratum were really a hybrid of Chinese origin, which has become wild in certain parts of Japan."

I have at various times intended to write about this theory, which has often been mentioned before, but now that so great an authority as Mr. Henry has written concerning it, I wish to add a few words on the subject. It seems to me that no one who has seen Lilium auratum in its native land can doubt that it is a distinct species, original to Japan, for it seems impossible that any hybrid introduced into Japan could have spread over the country to such an extent as we find Lilium auratum has done. This Lily grows in the Nikko mountains, the Hakone mountains, in fact on the mountains and hills almost all over the eastern and northern parts of the island of Nippon, the most central and largest of this Island Empire; unfortunately, however, no longer in such quantities as formerly, owing to the immense quantities exported, for the farmers simply take their planting-stock each year from the mountains, not having the thought to cultivate the bulbs either from scales or seed.

In support of this theory it may be mentioned that on the hillsides too steep for the foot of man to reach, there the Lilies are still to be seen in masses, all of which leads one who has formerly seen the Lily growing here to conclude that it is a native Japaneso plant, and doubtless a true species. The question is often also asked, why the early travellers here did not mention Lilium auratum. The answer to this is, I think, that before Japan was opened to the world, foreigners were only allowed to live on the small island of Decima, in Nagasaki harbour, and all plants which they described and sent home came from that region where Lilium auratum does not grow.

Another reason is, that the Lily was so common here that the Japanese botanists who helped Siebold and the other foreigners probably never thought of this blossom as being an important one—still the reason why the Japanese to-day rarely use it in their gardens, seeming to care very little for this Lily so prized abroad. *Alfred Unger (L. Rochmer & Co.), Yokohama.* [It will be remembered that Lilium auratum was first made known in English gardens by the late John Gould Veitch, and that it was described and figured for the first time by Dr. Lindley in our columns in 1862, p. 623. ED.]

NATURE IN WINTER.

This season of the year, though generally regarded as a period of decay, full of tempestuous winds and melancholy monotonous rains, has many consolations for the reverential spirit, which they who love not Nature can hardly realise. In many sheltered places, for example, familiar and favourite wild flowers may still be found. In a sequestered corner of my garden the Primrose, whose mild splendour is usually associated with the floral revelations of May and June, is in premature bloom. Near it is that hardiest and most heroic of woodland flowers, the pink Campion, still adorning at green intervals the garden wall. There also may be found the miniature Linaria, which has all the characteristics which pertain to sylvan flowers. The Woodbine still retains, with beautiful persistence, its glossy leaves. This plant has quite a tropical aspect in the woods environing Logan House, the residence of the chief proprietor in this parish, where, climbing up the trees, it sometimes reaches a height of 20 feet, forming a series of most artistic pictures during the month of July.

Though the wild Roses have only a short summer season of transitory bloom, their clustering scarlet berries are richly effective at this season of the year. Exceedingly graceful are those of the Holly, one of the loveliest of winter trees, which has tender Christmas associations; links of sacred memory between the everfading present and the steadfast past. The Hawthorns also are radiant with berries, whose utility is even more apparent than their beauty; a providential provision for the helpless birds. And thus while Nature in winter is not unbeautiful, and by no means unsuggestive, she is also full of hope. "Nature," says the great Wordsworth, in one of his most thoughtful and most memorable poems, "never did betray the heart that loved her; 'tis her privilege through all the years of this our life to lead from joy to joy." And this is the feeling which she imparts at this season to the patient cultivator, that the spirit of the re-awakening and vivifying spring is not very far away. Already, as early as December 15, the first-born of the Snowdrops, gleaming pendulously in my garden, gladdened my gaze.

The Crocus, its brighter but not lovelier successor, is already disclosing its closely folded, embryonic leaves, through which its floral brightness ere long will reappear. The Daffodil, whose growth, though slow and laborious till it feels the warm impulse of the vernal rays, has nevertheless begun, and attests by its aspect that there is preparation for the future at work underground. This, indeed, is the noblest prerogative of Nature; that her work, however marvellous,

is accomplished in repose. There is no sound to indicate the greatness of her efforts, which are not the less momentous because so silently transacted; beneath the thunder of the elements her "still, small voice" is that of God.

And thus, while in spring and summer and autumn she ministers most graciously to our instinct for beauty through the gentle medium of those flowers that bless our troubled lives, and grow upon our graves, she teaches us at this season of seeming death and desolation deep lessons of patience and faith and steadfast hope. Beneath the shroud-like covering of the stainless snow her great heart is beating with the pulsations of the spring. The heavens may be clouded, the atmosphere in mourning, but the Snowdrop has arisen from the grave of Nature's beauty, and the vernal resurrection has already begun. *David R. Williamson.*

DISA GRANDIFLORA.

OUR illustration (fig. 20), represents a very remarkable specimen of this fine scarlet terrestrial Orchid, which is often called the Pride of Table Mountain. We have illustrated the species before, and have often had photographs of good specimens sent to us, but have never seen one so fine as that from which our illustration was taken, and which was sent by the grower, Mr. W. Kilfour, gardener at Edge Hall, Milltimber, Aberdeen. The specimen bore fifty-four flower-spikes, having together one hundred and twenty-two blooms, one spike having five of them. The plant was remarked on in the *Gardeners' Chronicle*, December 6, 1902, p. 413.

ECONOMIC BOTANY.

WE take the following extracts from an address recently delivered in Edinburgh by Professor Bower, as printed in the *Journal of the Pharmaceutical Society*. Addressed to a body of pharmacists, they are, *mutatis mutandis*, fully applicable to cultivators of plants, whether agriculturists, foresters, or gardeners.

After dealing with the pursuit of pure science, on which future progress so materially depends, Professor Bower went on to the consideration of the applications of science, and especially of the applications of botanical science, to practical ends:—

THE SUPPOSED USELESSNESS OF BOTANY.

There is, perhaps, no science which seems to the average man so futile. The name "botanist" is, to those who know least about it, almost synonymous with that of a "mild and harmless visionary." He does no harm to anybody, they would say, and, under their breath, add, that he does no good either. Yet this same average man eats vegetable foods daily; even his beef and mutton are indirectly of vegetable origin; he drinks beverages of vegetable origin, solaces himself with vegetable narcotics, depends upon vegetable textiles for many of his clothes, uses wooden articles for all manner of purposes; he is liable to fall a victim to diseases of vegetable origin, which he will try to cure by the help of vegetable drugs. Why, if this be so (and the average man can hardly be ignorant of it), does he take so unfavourable a view of the student of those organisms which are the very mainspring of his life? I cannot help thinking that the botanists are in a measure to blame. In the past, perhaps more than now, they have entrenched themselves behind a barrier of terminology, and make little endeavour to show that many of the terms are in themselves an evil. Accordingly, the conclusion is that the botanist sets store by repulsive trifles, and is, therefore, worthy of contempt. But, further, in this country we have been slow to adopt the practical applications of botany to agriculture, forestry, manufactures, and the arts; this is, perhaps, the chief reason why the average man has not yet consented to take the science of botany quite seriously.

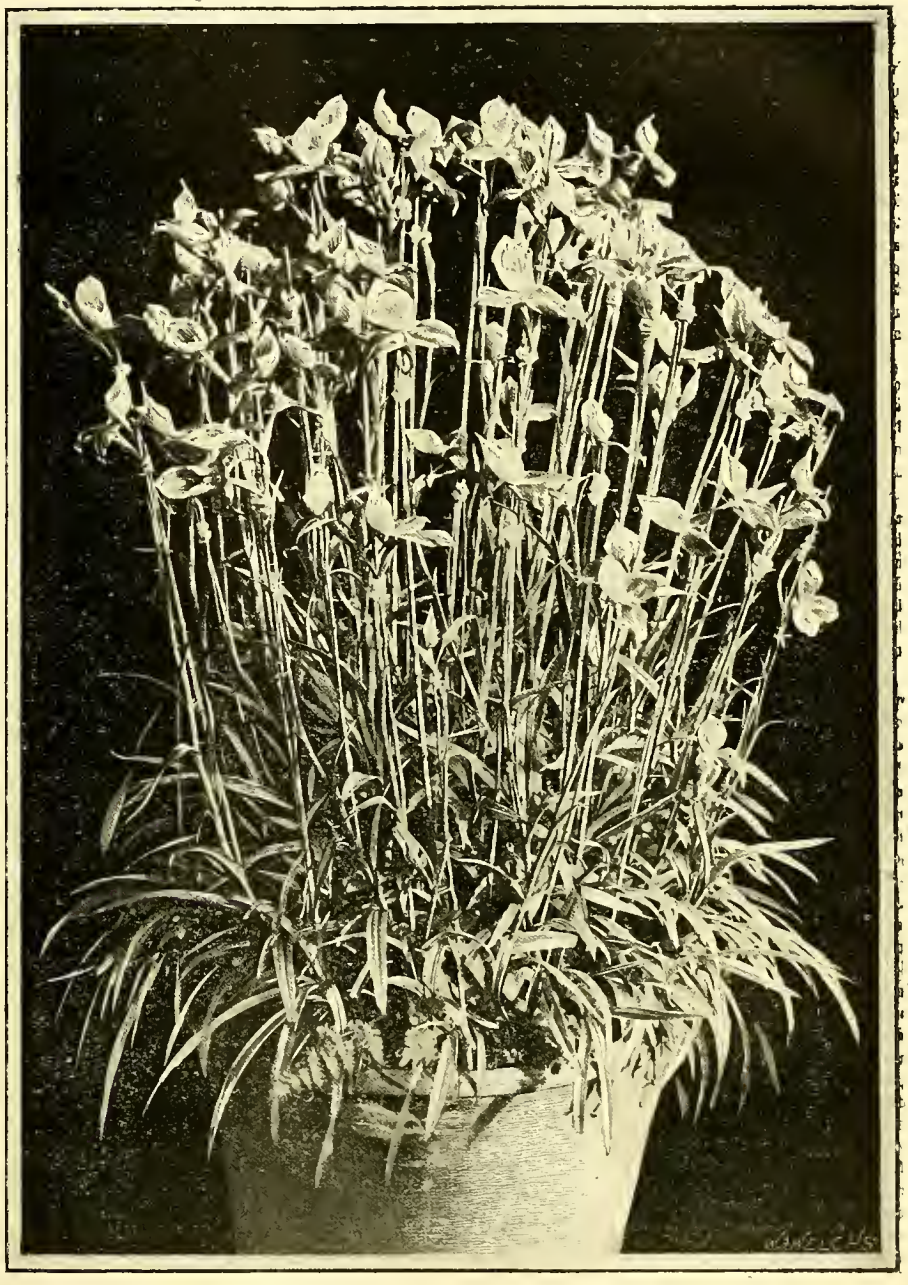

FIG. 20.—SPECIMEN PLANT OF DISA GRANDIFLORA, CULTIVATED IN EDGE HALL GARDENS, ABERDEEN.

THE TEACHING OF AGRICULTURE.

As a consequence of the great increase in the introduction of cheap food materials from abroad, coming on the back of a series of bad seasons at home, the agriculture of the country fell into such difficulties as to draw general attention to the need for more precise and economical methods. The edict went forth, as a sudden consequence of panic, that agriculture was to be taught locally; and at once an army of teachers, some newly appointed for the special duty, others having this duty thrust upon them, engaged in this task with little or no previous practical knowledge of it. Naturally, it was not difficult for the practical farmer, or even the farmer's boy, to ask questions of these teachers, which received answers at times not calculated to convince those practical audiences; and so a praiseworthy effort to meet a pressing need was for the time discounted before the public—the reason being that it sprang from a spasmodic action under panic, and found the country unprepared. The true method should have been for the Government to have foreseen what was coming, and to have met it by the establishment beforehand of agricultural

colleges, and the systematic planting of the finished student, grounded in pure science and practised in its agricultural application, in country districts. A generation of disrepute would thus have been saved. We indulge in wearisome reiteration of the statement that the sun never sets on the British Empire, but we still wait wearily for the dawn of that era when a British Government shall foresee and provide for what is inevitably coming upon us, and not trust to our fatal propensity of muddling through somehow.

While as regards the teaching of agriculture the country has thus floundered into a position which, though far from being ideal, is certainly less unsatisfactory than that of twenty years ago, what do we see abroad? I need not do more than mention the widely-spread "Versuchsstationen" in Germany, which are truly scientific institutions. The only equivalent of these in Britain is Rothamsted, the noble result of private munificence. But our best lesson is from America, from people of our own race. The case has lately been stated as follows, in one of Mr. Foster Fraser's articles which have attracted so much attention in our public papers:—

"Scientific agriculture is, I know, regarded somewhat contemptuously by the sturdy, broad-shouldered, bright-cheeked, and bluff-mannered Briton. Scientific farmers are good-naturedly regarded as 'cranks,' who generally lose their money.

"In America, the modern farmer is a college man. At twenty-one he is little more than a theorist, and the young Briton can 'chew him up' in rough-and-ready knowledge; yet, admitting all this, I am convinced that the American is on the right tack, for in farming, as in engineering, the technically scientifically trained man is bound to win."

This, it should be remembered, is not the opinion of a specialist or expert in agriculture, but of an uncommonly observant man of general education.

The case for the systematic study of vegetable economics is at the moment comparable to that of agriculture before the Government edict, though its deficiencies can never be brought home to the public mind in the same way as were those of our largest home industry. The facts I believe to be as follows:—Our wide-spread dependencies are capable of producing almost all the varied vegetable products of use to man; hitherto we have dominated the markets of some, and held our own in others, while the British ports have been centres of distribution for a great part of the civilised world. Now other nations are making vast strides in colonial development; they are growing and importing their own supplies in increasing quantities, and doing so on a basis of technical knowledge, with which we have made no organised effort to keep pace. While in Germany, Austria, and elsewhere, technological institutes, and even university departments, are regularly employed in the microscopical study of raw materials, and in tracing their botanical origin (subjects which are even obligatory on students in the High School in Vienna), Great Britain, with the greatest colonial interest in the world, is, so far as I am aware, without any organised teaching of these subjects. And where is it that we find the best modern book on these matters published? Curiously enough, in Vienna, the capital of a country which has no colonies of its own. The cynic might argue from these facts that the higher study of vegetable economics is immaterial for colonial success; but those who remember how recent has been the acquisition of such systematised knowledge, and who carefully watch the trend of commerce, will know how false a conclusion this really is. Past colonial success is a very different thing from colonial success in the future.

(To be continued.)

The Week's Work.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq Dropmore, Maidenhead.

Fruit-trees on Walls.—Pear, Plum, and Cherry trees planted in the autumn of last year, now that the soil has settled and become firm, may be pruned and nailed or tied forthwith. In the case of young maiden trees from a nursery, let them be cut back to 1 foot, pruning to a wood-bud. Trees of bearing age which were transplanted from other stations should have their shoots spurred-in closely; and varieties such as Josephine de Malines, Jargonelle, and Winter Nelis, which form fruit-buds at the ends of short shoots should, when grown too long, be cut back to a wood bud. Plums and sweet Cherries bear mostly on spurs, and require the same kind of treatment. When the trees are nailed, lightly point the alleys with a digging-fork, and lift the mulch of litter over the roots of newly-planted trees.

Gooseberries and Currants.—Proceed with the pruning of the bushes. Directions were given in the *Gard. Chron.*, vol. xxxii., p. 457, on pruning and protecting the buds from tomtits and bullfinches, so that there is no necessity to repeat what is there said. Where these mischievous birds are numerous, as at Dropmore, the gun and dust-shot must be used against them.

Selecting Grafts.—Where it is intended to graft Apple, Pear, and Plum-trees, suitable shoots should now be selected, i.e., those that are of middle-size, well-ripened, clear in the rind, and free from the least trace of disease. These should be tied in quite small bundles of a dozen or less, furnished with a stout wooden label, upon which the name of the variety should be plainly written, and the bundles laid in the earth in a cool, sheltered spot, making sure that the butt-ends rest on the soil.

Labelling.—Let all recently-planted wall trees be labelled, with the name plainly stamped on lead, or written in indelible ink, or with a black-lead pencil on twice-painted wood, and secure the labels with wire to a stout nail or staple driven into the wall for standard and bush trees. In fastening the wire, allow plenty of space for the expansion of the branch

The Strawberry.—Alpine Strawberries should be raised from seed sown thinly in cutting-boxes, and placed in a warm pit, and when the plants appear keep the boxes close to the glass. Afford air in fine weather, and when large enough prick off into other boxes, and gradually harden off, planting them out in April on well manured ground.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Cyclamens.—It is my practice to sow the seeds towards the end of the month of September; and the seedlings are now being pricked off into light sandy soil in seed-pans at 4 inches asunder. The corms are only half buried in the soil, as if planted deeper the foliage is apt to be lost, and sometimes the entire plant. Place the pans within 18 inches of the glass roof in a house having a night temperature of 58° to 60°, syringe them daily, and afford no other water for a few weeks. Vaporise lightly with XL-All should green-fly infest the plants. The plants in flower should be assisted with weak guano-water once a week, not allowing it to go over the corm, or many of the flower-buds will damp off. In gathering the flowers pull them out so that nothing remains to set up decay. Cyclamens are more successfully grown when kept fairly near to the glass, and plenty of air afforded.

Hippeastrums.—These are among the most useful subjects we have for flowering during winter and early spring, and where there is a good stock of bulbs it is an easy matter to maintain a supply of flower from November till June, by introducing bulbs into heat in alternate weeks. Those started in the autumn and up to the new year are the better for not being disturbed at the roots, but shaking them out and repotting them after they are passed out of flower. From now onwards repot as soon as growth begins, shaking away all soil and stripping off any loose skin or decayed roots. Clean pots, varying from 4 to 7 inches are suitable sizes for single bulbs, and good loamy soil, with a little leaf-mould, crushed charcoal, and a good percentage of coarse silver-sand should form the compost. Work the soil carefully down among the roots so as not to bruise them, but making it quite firm. Place in a house having a warmth of 60°, and if a slight bottom heat can be applied so much the better. But little water is required for several weeks afterwards, but a syringing twice daily is necessary. Keep H. aulica that have recently flowered in a growing temperature for the next two months, then place in the greenhouse. Seeds may be sown forthwith, dibbling them in edgeways, in which position they are not so liable to decay as when laid flat on the soil.

Richardia africana.—If spathes are pushing up, the plants may be afforded manure water twice weekly. Keep the plants under close inspection, as green-fly is apt to infest them, spoiling the appearance of the spathes.

Tree-Carnations.—Side shoots being now plentiful, and in a fit state for making cuttings, pull out some of the stronger, and cut them just below a joint. Insert them in 3-inch pots of sandy soil, not pressed too firmly, keeping them close to the sides of the pots. Apply water to settle the soil, and place under hand-glasses or in a propagating-box in a light position in a temperature of about 60°. A thin shading may be employed while the sun shines direct on to the cuttings. In about four weeks they will be rooted, and may then be gradually inured to the air of the house, and stood near to the roof for a week. Later, pot off singly into 3-inch pots, in soil consisting of equal parts of loam and leaf-soil, with plenty of sand, taking great care that the roots do not get broken, and return the plants to the same house.

Luculias.—This plant as it passes out of flower should be treated similarly to the Brugmansia, but it must not be pruned so hard, as the flower-trusses form more freely on shoots of medium size than on those that are of extra strength.

THE ORCHID HOUSES.

By H. ALEXANNER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Plants in Bloom.—At the present season several interesting plants are in flower, and in the intermediate-house Cypripediums still contribute a fine display. C. Charlesworthi, C. Spicerianum, C. insigne, and C. Leeanum and its varieties, are among the first to flower late in the autumn, and these have now passed out of flower; and C. villosum, C. Boxalli, and their hybrids, C. Lathamianum, C. Calypso, C. nitens, C. J. Howei, C. Sallieri Hyeanum and its variety aureum, C. Mons. de Curte, C. Euryale, C. Exul, C. Tityus, C. Pollettianum, are now flowering. Cypripediums have the best effect grouped by themselves than when they are associated with other showy Orchids. Plants that are in flower, and those just passed out of flower, should be afforded sufficient water to keep the materials moist. I never allow Cypripediums to become very dry at any season. Cypripedium Winnianum is also in flower in the intermediate-house; the flowers are of an ivory-white tint, and they last a long period of time in perfection. Water should be sparingly afforded to this plant until it starts again into growth, but the materials must not be allowed to get very dry. Lycaste Skinneri, L. aromatica, L. Deppei, L. plana, and the beautiful hybrid Mary Gratrix (L. Skinneri × L. plana), are now pushing up their flowers, and an increased quantity of water at the roots will assist in the development of the flowers.

Cattleya House.—The hybrid Cattleyas help greatly in keeping our houses gay during the winter, and where hybrid Cattleyas and Lælio-Cattleyas exist in quantity, there are nearly always a few in flower. One of the most beautiful now in flower is L.-C. Charlesworthi, whose orange-scarlet flowers are carried on long stalks. It is one of the finest of the winter-flowering hybrids. Lælio-Cattleyas grow freely, given a position at the warmest end of the Cattleya-house whilst growth is being made; they need much moisture at the root and humidity in the air. When the plants

begin to grow in the spring, the back pseudo-bulbs should be partly removed from the under side, a small surgical saw being very useful for this purpose; and the buds behind the cut will then come away freely. Plants so treated by me last spring have now three or four flower-spikes each, some of which are bearing seven flowers on a spike. Let the plants be placed in the cooler part of the house, and afforded sufficient water at the roots to keep them healtby. A plant of L.-C. Sunray is likewise in flower, and is accorded the same kind of treatment. Cattleya Trianæi and C. Percivalliana are now pushing up their flower-spikes, and will be afforded more water at the root than hitherto. The latter often fails to open its flowers satisfactorily, but the failing will not be so great if the plant be removed to a warm part of the house.

Preparations for Potting.—Obtain an ample supply of fresh sphagnum, turfy-peat, and leaf-soil, a good supply of new or clean pots and pans, crocks, wire suspenders, &c., so that these materials may be in readiness when the busy season begins. It often happens that at a little later date repotting has to be deferred because the sphagnum is locked up by frost.

Protection of the Houses with Garden-mats, &c.—When the sides and ends of an Orchid-house consist chiefly of glass, and the position is an exposed one, protecting materials of some sort should be used in frosty weather. It will happen that plants placed near the roof, or the glass ends of a house, are found in the morning with heavy dew on the leaves, a state of things not conducive to the welfare of the plants; and in order to prevent it, Russian mats or thick canvas should be nailed over the glass, and made secure against the wind. This covering need not be removed till the end of next month or in March, if mats are rolled along the lower portion of the roof at night, they should be removed when the temperature begins to rise in the morning. A 2-inch hot-water pipe running along on the inside of the lower portion of the roof, about 6 inches or a foot away from the glass, is likewise of great value during spells of severe weather. Such a pipe, if kept only moderately warm, does not injure the plants. It should be in use only at such times.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Peas.—Peas sown in December in pots and boxes for carrying a crop of pods in the same, must be kept near the roof glass, and afforded plenty of air whenever the weather is not raw and cold. The treatment of Peas in pots from start to finish should be that known as "cool." Place thin Birch spray to the plants betimes, or secure the haulm within bands of matting held up by neat stakes. Sow for succession to be grown under glass, such varieties as Sutton's May Queen, Early Giant, Carter's Early Morn, or Daisy, all of which are trustworthy. The variety Chelsea Gem is invaluable for pot and frame culture especially, and being of small stature, &c., it can be grown where the space at the disposal of the gardener is small. Sow likewise in pots or on strips of turf under glass or in troughs with moveable sides for planting out-of-doors. Sow new seed thinly, and never force the plants into weak growth by warmth. Be cautious in sowing Peas out-of-doors as yet, the ground being cold and not favourable to the early vegetation of the same. If a dry, sunny border, consisting of light and rich soil, is available, Peas may be sown at this date; but when the soil is heavy, defer to sow till February. The Peas sown in the autumn, being now of some height, should be protected by evergreen or other twigs placed on both sides of the rows, and be afforded a light sprinkling of quick-lime in powder, or of fresh soot.

Broad Beans.—One of the best Beans for early sowing is Early Mazagan, and next to that is Beck's Dwarf Green Gem. The usual treatment accorded Peas suit these early varieties of the Broad Bean.

Autumn-sown Cabbage.—On light land it is advisable to steady and make firm all plants loosened by frost and wind, trampling lightly when the soil is not sticky on each side of the rows, and afterwards moulding up the plants so far as the lower leaves. Gaps in the rows should be filled up.

Brassicas Generally.—Sow in small quantities in boxes and place in frames, or on a slight hot-bed seeds of Cauliflower in variety, Brussels Sprouts, Red and White Cabbage, also Cos and Cabbage varieties of Lettuce. Allow the seeds in every case to germinate slowly. Carrots may be sown in frames placed on slight hot-beds, the covering of which should consist of a mixture of light sandy loam and leaf-mould in equal proportions together with wood-ashes and road grit, and a sprinkling of Clay's Fertiliser, the whole being passed through a sieve with ¼-inch mesh. The soil may have a depth of 15 inches, and it must be pressed firmly together. Sow in drills drawn at 8 to 10 inches apart. The French or Early Short Horn are reliable varieties, good for the present sowing, as is the Early Dutch Horn. Radishes may be sown in small quantities at fortnightly intervals in a similar kind of hot-bed frame.

Onions.—Seeds should now be sown in small flower-pots or in boxes having a depth of 4½ inches for the production of large bulbs. The compost may consist of fibrous loam one-half, leaf-soil a quarter, and a quarter of dried horse-droppings, with some coarse sand added. Sow thinly, and only just cover the seed with fine soil, and make all quite firm. Place in a forcing-house just started. Onion seed should germinate slowly, and the plants be kept stocky and vigorous. For exhibition purposes Ailsa Craig is one of the best.

Frames.—Afford air to Cauliflowers, Lettuces, Endive, and Parsley, keep the plants free from decayed leaves, and do not allow crowding, or the plants will be worthless.

FRUITS UNDER GLASS.

By T. H. C.

Vines.—Disbud early Vines as soon as the most fruitful shoots can be readily distinguished, leaving one to a spur. Stop the laterals to one or two joints beyond the bunch, according to the space allotted to each. Disbudding or stopping the laterals should always be done by the finger and thumb, never allowing the shoots to attain the size when a knife is necessary to remove them. Afford a night temperature of 58° to 62°, with a rise of 10° during the day, according to the state of the weather. Admit air by the top ventilators upon every favourable occasion. Shut up early to enclose sun heat, lightly syringe the rods, and maintain a moist condition of the atmosphere. Start succession houses as required without artificial heat for the first week or ten days, except in severe weather, when a temperature of 45° may be maintained.

Propagation.—The best and most common practice of raising young Vines, is from eyes or buds of the previous year's growth. When pruning, laterals containing good plump buds should have been inserted in damp sand or soil; these should now have the buds with an inch or so of the lateral removed, cutting it half through on the under side. Insert these singly in 3-inch pots, or thinly in pans or boxes in a light compost of two-thirds good sandy loam, and one-third leaf-mould, to which may be added a little fine charcoal and mortar-rubble. Plunge the pots, &c., in a bottom heat of 75° to 80°, and a top temperature of 65° to 70°. When rooted, pot on, and grow quickly in a stove temperature with plenty of moisture. At subsequent potting, never allow the plants to become pot-bound. With successful management and close attention to the smallest details, good canes for next year's pot-Vines may be grown, which are in many ways preferable to "cut backs."

Forcing Pines.—Houses or pits should now be got in readiness for succession fruiting plants. Lime-wash the walls and sides of the plunging pits, cleanse the structures, particularly the glass, so that it may at this season admit every ray of light. If the heating power of the old plunging material is exhausted, renew it with fresh, which may consist of tanner's bark, or Oak and Beech leaves. If unable to wait until the bottom heat subsides to a safe plunging temperature, open out wide holes 2 feet apart, and stand the plants on inverted flower-pots free of the plunging material, and when the heat declines plunge to the rims. Very little water is necessary at this season, but when applied sufficient in a tepid state should be given to thoroughly moisten the ball of soil. Withhold water from plants ripening off their fruit, otherwise the flavour will be impaired. Afford a bottom-heat of 80° to 85°, a night temperature of 65°, and one of 10° higher more or less during the day, according to the state of the weather; ventilate when the weather permits. Whenever good strong suckers are available, detach them from the old plants and propagate singly in 5-inch pots, using a rich loamy compost, pressed firmly round the base of the sucker. Plunge in a brisk bottom-heat, close up to the roof-glass in the propagating-pit. Keep a sharp look-out for scale and other insect pests, as they are easily dealt with in the early stages of the plant's growth, and need not prove troublesome afterwards.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Bedding Plants.—Where the autumn-struck cuttings of zonal and Ivy-leaved Pelargoniums are sufficiently plentiful for all purposes, let the points of the shoots be pinched out, so that a bushy habit may be the more readily induced before the time comes to repot or box off the plants a few weeks hence.

Verbenas, Dwarf Lobelias, Heliotropes, Iresines, Alternantheras, and, in fact, any bedding plants which are propagated from stock-plants, should now be put into warmer quarters for the production of shoots, and if the stock of plants is low, several batches of cuttings may be needed. In the cold propagating-frames such plants as Antirrhinums and Calceolarias should have the points of the shoots pinched out, and strong-growing Violas may be served in the same manner. Stir the surface-soil in the pots, and remove decayed leaves. The ventilation of cold frames should be constantly attended to during the winter, or the plants will suffer. A hotbed should be now made in a warm, sunny position, sufficiently large to accommodate a one, two, or three-light frame, in which may be sown seeds of East Lothian Stocks. It is necessary to raise these early, and if grown in quantity, sowing in frames will be found better than raising the plants in boxes in a forcing-house, as there is less fear of loss by damping-off. The soil must be sweet and wholesome, and mixed with a considerable quantity of finely-sifted old mortar. To those who have not grown it, I recommend strongly the comparatively new "rose coloured," a variety which is very constant and good.

Lobelia cardinalis.—In gardens where this plant is difficult to keep during winter, let the plants in stock-boxes be placed in heat, the doing of which usually checks canker, and brings the clumps into condition for early division. Here we depend largely upon seedlings, and sow the seeds in the summer. The favourite L. c. Queen Victoria comes true from seed, but the fine L. c. Firefly rarely ripens seeds, and the stock of this and some others must be kept up by division.

Hollyhocks.—The seeds should be sown early to get good flowering plants the first season, and where they are treated as annuals it is time now to sow seeds. I prefer to treat the plant as a biennial, sowing in July. There is no question but that Hollyhocks raised from seeds are not so liable to the orange-fungus as are those raised from cuttings.

Cannas.—The seeds should be sown forthwith in a hot, moist house or hotbed-frame, plunging the seed-pots in leaf-mould or Cocoanut-fibre. Before sowing, notch the seed-capsules almost or quite through.

Liliums.—The bulbs of L. auratum, L. speciosum, and other hardy Lilies, should be planted out during the first mild weather after they arrive, as keeping them out of the soil is always injurious. In choosing a position for the bulbs, plant them among low shrubs, the branches of which afford shelter to the stems in the spring.

Mossy Saxifrages.—If employed as edgings to flower-beds, press them lightly with the foot, which will tend to keep the tufts dense and the lines in good form.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JAN. 19 { Surveyors' Institution (Junior), Meeting.

THURSDAY, JAN. 22 { Gardeners' Royal Benevolent Institution: Annual Meeting and Election of Pensioners, at 3 P.M., at "Simpson's," Strand.

SALES FOR THE WEEK.

MONDAY and FRIDAY, JANUARY 19 and 23—
Herbaceous and other Plants, Azaleas, Rhododendrons, Bulbs, Perennials, &c., at 67 and 68, Cheapside, by Protheroe & Morris, at 12.

WEDNESDAY, JANUARY 21—
Azaleas, Rhododendrons, Roses, Palms, Hardy Border Plants and Perennials, &c., at 67 and 68, Cheapside, by Protheroe & Morris, at 12.—At 5 o'clock, 1,610 cases of Japanese Liliums, also Palm Seeds, &c., at 67 and 68, Cheapside, by Protheroe & Morris.—Roses, Hardy Perennials, Bulbs, Fruit Trees, &c., Stevens' Rooms, 12.30.—Collection of Orchids, St. James' Hall, Leeds, by Mr. J. Cowan, at 12.30.

FRIDAY, JANUARY 23—
Sale of Burmese Dendrobes, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.—Collection of Orchids, Coal Exchange, Manchester, by Mr. J. Cowan, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick—37·5°.

ACTUAL TEMPERATURES:—
LONDON.—*January* 14 (6 P.M.): Max. 34°; Min. 29°. *January* 15 (9 A.M.).—Fine, cold; 23° F.
PROVINCES.—*January* 14 (6 P.M.): Max. 42°, West Ireland; Min. 30°, Eastern Counties.

Sylva of North America.*

THE first volume of this imposing publication was issued in October, 1890, at a time when the number of trees and shrubs native in the forests of N. America proper was thought not to exceed some 422 species. It was considered that twelve volumes containing 600 plates would suffice for the description and illustration of these plants. But during the progress of the work many new species have been discovered, and much light thrown on those previously known. The result has been that the preparation of two supplementary volumes has been necessitated, so that the completed work contains the description of 585 trees and shrubs, and no fewer than 740 plates.

We have already on more than one occasion spoken in terms of admiration of this magnificent publication. For the accuracy of the descriptions, the wealth of illustrative notes and bibliographical notices, the skill and care with which the geographical distribution of the several species is worked out, the book is truly a most remarkable production; nor can we speak less highly of the illustrations drawn by Mr. FAXON. Without any pretence of display or artistic subtlety, they are most faithful representations of the several trees, whilst the carefully-executed details supply just what is necessary for the botanist. With the system of nomenclature adopted in some cases, we are not always in full sympathy, but this is largely a matter of opinion; and as the synonymy is fully detailed, the student need not be much inconvenienced by the adoption of unfamiliar names selected on principles which are different from those mostly (but not wholly) acted on in this country.

In one of the present volumes much attention is given to the genus Cratægus. Several species are described as new, and even these, we are told, do not include all the forms which may be found in N. America. Rightly to understand these would require many years of observation in the field, and rather than delay the publication of the Sylva, these are passed over for the present. The number and arrangement of the stamens, and the colour of the anthers, are relied on to distinguish these species, in addition to other characteristics of less constancy. Prof. SARGENT gives a list of eighty-four species grouped in an analytical table under two main headings—the Macrocarpæ, with medium-sized fruits; and Microcarpæ, with small, depressed, globose, scarlet fruits. Other subdivisions are made according to the size and colour of the fruit, the ridges or furrows on the seeds, the texture of the leaves, the colour of the anthers, the nature of the calyx and of the inflorescence, the presence or absence of glands, &c.

Practical experience in the field or the arboretum can alone be relied on to enable the student to test the diagnostic value of these characters; but whatever the verdict of subsequent enquirers may be, there can but be one feeling of gratitude to Professor SARGENT for the pains he has taken to get this troublesome group into order. Without some such guide as he has here given, it would be difficult, if not impossible, to disentangle the intricacies of this genus.

The inclusion of Florida necessitates the admission of several tropical or subtropical species, such as the Papaw, Carica Papaya, and the Opuntia, of which three species are noted, viz., O. fulgida, O. spinosior, and O. versicolor, Serenoa arborescens, Thrinax floridana, T. keyensis and T. macrocarpa, and Coccothrinax jucunda—all fan Palms with panicles of globose fruits.

As to Juniperus virginiana (the Red Cedar), Prof. SARGENT, from his studies of the tree in the field, splits it up into three, viz., 1, J. virginiana, of the Northern States, which ripens its fruit at the end of the first season; 2, the Red Cedar of Florida and Jamaica (J. barbadensis), with more slender, pendulous branches, which spread into a broad, open head, and smaller fruits, ripening at the end of the first season; 3, the Red Cedar of W. America (J. scopulorum), with rather stouter branchlets, fruit which does not ripen until the end of the second season, and lighter-coloured, usually reddish-brown wood. The Florida Cedar is not distinguishable from the J. barbadensis of the West Indies. The names barbadensis and virginiana both date from 1753. The differences in the fruit and its period of ripening are doubtless good differential characters; but those derived from the habit of the tree, and even from the foliage, are hardly to be depended upon.

The history of these Junipers is given at some length in the *Journal of Botany* for January, 1899; but the Western form, J. scopulorum of SARGENT, is not well known to us.

Cupressus pygmæa is the name given to what has been previously considered to be a form of C. Goveniana.

The work ends with a few corrections and additions that have been found necessary, and with a complete index of the genera and species mentioned in the fourteen volumes. We should have been glad if the author could have seen his way to give an index to the names of authors, travellers, and collectors mentioned in his pages, and to the works cited in his bibliographical notes; but he has added already so largely and so effectively to our possessions, that this wish may expose us to the charge of being insatiable.

* *The Sylva of North America*, vols. xiii. and xiv., by Charles Sprague Sargent. (Boston, and New York: Houghton, Mifflin & Co.)

BOWOOD.—Our Supplementary Illustration represents a portion of the Italian garden at Bowood, the seat of the Marquis of LANSDOWNE near Chippenham. The orangery is said to have been erected from the designs of ROBERT and JAMES ADAM, the architects of the Adelphi, and is in imitation of the Emperor DIOCLETIAN'S palace at Spalato. The garden shown is on the west side of the house, and occupies a terrace some 285 feet in length, with formal beds filled with flowers and appropriate shrubs. Above it is a second terrace running along the front of the orangery, and supported by an ornamental wall, with vases at intervals. It is obvious that in such a situation, a "formal" garden is more appropriate than one of a more "picturesque" character. The walls are covered with Roses, Magnolias, and other ornamental shrubs. We shall probably enter into fuller details relating to this garden on another occasion; meanwhile we may cite the remark made by a correspondent who visited Bowood in 1891, "Everything at Bowood is spacious and grand."

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The sixty-fourth Annual General Meeting of the members and subscribers of this Institution will be held at "Simpson's," 101, Strand, London, W.C., on Thursday, January 22, 1903, at 3 P.M., for the purpose of receiving the report of the committee and the accounts of the Institution (as audited) for the year 1902; electing officers for the year 1903, and for the election of fifteen pensioners on the funds; also to submit the following resolution:—"That the action of the committee, graciously approved by the President, H.R.H. the Prince of WALES, in placing on the funds the eleven unsuccessful candidates, formerly subscribers to the Institution, to commemorate the Coronation of their Majesties the KING and QUEEN, patrons, be and is hereby confirmed." The Chair will be taken by HARRY J. VEITCH, Esq., Treasurer and Chairman of Committee, at 3 o'clock. The poll will open at 3.15 o'clock and close at 4.30 o'clock precisely, after which hour no voting papers can be received. During the year 1902 the following widows of pensioners have been placed on the funds without election in accordance with Rule III., 13:—

1. MACKINTOSH, MARY E., aged 71.
2. TRUTTER, SARAH, aged 81.
3. WILDER, MARY ANN, aged 69.

After the Annual Meeting (also at "Simpson's," and for the last time in the present building), the usual friendly supper will be held at 6 P.M. Mr. ALFRED WATKINS (Messrs. WATKINS &

SIMPSON) will preside. Friends desiring to be present should send early intimation to the Secretary at 175, Victoria St., Westminster, S.W.

—— Very recently I was permitted (says a correspondent) to make to gardeners generally an appeal on behalf of this valuable Institution. But now comes to hand a far more potent appeal, although one which falls into the hands of existing subscribers only, in the form of the ballot or voting paper relating to the next annual election of pensioners, and which takes place on the 22nd inst. The paper informs those to whom addressed that there are fifteen persons to be elected, and there are no fewer than forty-six candidates. These are distressing facts, because they show that of the latter number no fewer than thirty-one applicants will have to be left out in the cold. It is painful, indeed, to find that in gardening there should be so many aged persons so helpless that they are compelled to appeal thus for help to exist. It is not less painful to find that, for lack of that universal support which so noble an institution should receive at the hands of British gardeners, so many aged and unfortunate ones should fail to obtain the much-needed pensions. It is very interesting to find that out of the forty-six applicants, no fewer than thirty-one either have been subscribers or are the widows of subscribers. Of those nine are widows, and thirteen are males. Of the fifteen non-subscribers, two are widows, and thirteen males. Of the subscribing section one applicant is eighty-one years of age, thirteen range from seventy to seventy-nine, fifteen from sixty to sixty-nine, and two, both evidently quite physically prostrate, range between fifty and fifty-nine. It is, indeed, sad to find men thus struck down physically whilst in the prime of life. Of the thirty-one subscribing members, every application is for the first time, and some of these for their subscriptions in the past start with many aggregated votes. Thus, there are eleven that begun in that way with 2,000 votes and upwards, whilst seventeen have from 1,000 up to nearly 2,000 votes to their credit. It need hardly be said that all these, because they were subscribers in the past, have a strong claim on the suffrages of the electors. In the non-subscribing section it is seen that of present applications, one is the seventh, one the sixth, one the fifth, two the fourth, four the third, four the second, and one the first. These figures show how much in relation to securing an election non-subscribers are handicapped. The notes appended to each applicant's name are indeed sad reading. Nothing can more touchingly appeal for help than do these descriptions. Younger men may well ask themselves whether such may not be in old age their lot. As an almoner in one case I visited on New Year's day, the pensioner, a white-haired, nearly blind old man, occupying, with his aged wife, one room. Since his election on to the Fund, he has removed from a small, stuffy, back room into a larger front room; but the physical decay and utter helplessness remain. But for the Benevolent Fund these old people must ere now have gone into the workhouse.

FLOWERS IN JANUARY.—In a cold garden, on an undrained, heavy clay soil, with a north aspect, in Middlesex, Primroses and Snowdrops were gathered on the 8th inst., together with Hellebores and Jasminum nudicaule. The Honeysuckle-buds are nearly expanded, the Rose-buds, especially Crimson Rambler, completely so. How far north, or how high up, does the Honeysuckle grow?

GEO. MONRO, LTD.—Many of our readers are acquainted with Mr. GEORGE MONRO, and with his well-known business in King Street, Covent Garden, and will be interested to note the change in the name of the firm. A company has been formed to take over the business, established in 1871, and of this Mr. GEORGE MONRO is Founder and, now, Governing Director. The company is private, with no public issue, and no outside capital has been brought in, the matter having been arranged for the more convenient working of the very large business carried on by Mr. MONRO and his sons. A pamphlet has been issued, containing portraits of the head and of the chief members of the firm, and this forms an acceptable souvenir of the incorporation of the new company, as it includes a brief description of the business and of its wonderful growth.

M. DEHÉRAIN.—In the *Comptes Rendus* for Dec. 22, 1902, is published the report of the President of the French Academy, M. BOUQUET DE LA GRYE, upon the events of the year. In his speech, M. DE LA GRYE paid tribute to the memory of members deceased during the past twelve-months, making the following reference to our late friend and correspondent, M. DEHÉRAIN:—"M. DEHÉRAIN succeeded M. BOUSSINGAULT in the Rural Economy Section. In addition to his connection with the French Institute, the former was a member of the Société Nationale d'Agriculture, a Professor at the Museum at Grignon, and held other honourable positions in Associations where his work was known and valued. His labours were peculiar for their practical utility. For instance, he thoroughly understood that the truest wealth of France lay in her agricultural industries, and that as regards Wheat (for example), a crop that varied from 1,500 kg. to 3,000 kg. per hectare, represented for every 100 kg. of increase, an augmentation of a hundred million francs to the agricultural revenue. M. DEHÉRAIN's experiments were made with cereals, roots, and tubers. He studied the distribution of crops, the best foods for them, and the varieties that were most appropriate for cultivation under different circumstances. It must not be forgotten that he took a great part in discovering the formation of nitrogen in lands covered by leguminous crops, as well as in recommending the use of natural phosphates. M. DEHÉRAIN continued his valuable investigations for fifteen years, and all interested in agriculture will appreciate his labours and regret his loss.

"MY GARDEN DIARY FOR 1903."—This little publication, from Messrs. SUTTON & SONS, Reading, is, like its predecessors of former years, full of useful notes for each month. It has a pretty coloured cover, and some inside illustrations also, with a calendar and the usual information connected with it. There is plenty of room for memoranda on each page, and the whole is of handy size for the pocket or desk.

"FARM AND HOME YEAR-BOOK AND FARM-TRADE DIRECTORY."—This annual for 1903 is, as usual, full of hints on stock, dairying, manuring, poultry, and laws relating to farming. Information on the latter subject has been included by request, and is certainly useful to many when offered in this convenient and accessible form. Articles will here be found dealing in detail with the important subjects of contracts for sale and purchase of farming produce and live stock, workmen's compensations, laws as to fencing and trespassing, land tax and water rights. We recommend the publication to all who are interested in farming. It is published at the office of *Farm and Home*, 17, Furnival Street, Holborn, E.C.

SOWERBY'S "ENGLISH BOTANY" SUPPLEMENT.—The copy of this work in the library of the Royal Botanic Gardens, Kew, is incomplete, wanting plates 2912 to 2960, with letterpress and index; also plates, with letterpress, 2964, 2977, 2978, 2983, 2987, 2988 to 2999. The Director appeals to the public to assist him in completing this classical work on British Botany, either by presentation or sale.

"BOTANICAL MAGAZINE."—The plants figured in the January number are:—

Ruellia macrantha, Martius, t. 7872.—A splendid Brazilian Acanthaceous shrub, with shortly-stalked oblong, lanceolate leaves, and large rosy-purple veined flowers, with a trumpet-shaped tube, and a full-lobed spreading limb. See *Gard. Chron.*, December 28, 1901, p. 467.

Muscari paradoxum, Carl Koch, t. 7873.—A Persian species, one of the most handsome in the genus, with broad, strap-shaped leaves, and dense racemes, 3½ in. long, on long stalks, flowers about ⅓ in., oblong, campanulate, deep blue, with yellowish margins to the lobes.

Chrysanthemum indicum, Linnæus, t. 7874.—The editor refers under this heading to the papers of Mr. HENRY in the *Gardeners' Chronicle*, and to the article published on the same subject by Mr. HEMSLEY in our columns in 1889, which is described as "a model for the treatment of such a subject," and from which the synonymy and bibliographical references as here published are copied.

Allium Ellisii, Hooker fil., t. 7875.—A very handsome Khorasan species, with very broad leaves, and globose heads of rosy-violet-coloured flowers. Introduced by Hon. CHARLES ELLIS, Frensham Hall, Haslemere.

Diervilla Middendorffiana, Carrière, t. 7876.—A yellow-flowered "Weigela." See *Gard. Chron.*, 1890, vol. i., p. 581, fig. 94. Native of Mongolia, Manchuria, and Japan. *Kew.*

OUR POULTRY.—The last issued parts of this fine publication, produced by Mr. HARRISON WEIR, contain an illustrated account of the development of the chick from the earliest stage to its complete development, a process so wonderful that if it were not such an every day occurrence, we should be lost in amazement. The first requirement of the emancipated chick is food; consequently the requirements of the reader who is more concerned with the practical care of the fledgings and the fatting of poultry than with the marvels of their development, are duly provided for.

"ALL ABOUT SWEET PEAS."—Under this title Mr. ROBERT SYDENHAM, of Tenby Street, Birmingham, has published a little treatise, the profits from which are to be handed over to the Gardeners' Royal Benevolent Institution, on which account alone we should be justified in calling attention to it. But the pamphlet has intrinsic merits of its own which should commend it to Sweet Pea lovers. There is a descriptive list of all the best known varieties arranged alphabetically, and instructions how to grow them. Mr. SYDENHAM has obtained information showing the relative estimation in which certain varieties are held from thirty-three growers, and the results are so striking that we think there can be no doubt as to the superiority of the varieties named. Thus, Blanche Burpee was placed first among whites seventeen times. The numbers given after each of the following names show the relative degree of merit in each class arranged according to colour: Duchess of Sutherland, blush, 16; Countess of Lathom, cream, 11; Hon. Mrs. Kenyon, pale yellow, 25; Prima Donna, pale pink, 20; Miss Willmott, salmon-rose, 22; Mrs. Dugdale, pale rose, 22; Prince of Wales, deep rose, 17; Salopian, deep fiery or intense crimson, 30; Lady Grisel Hamilton, lavender, 30; Duke of Westminster, dark magenta, 24; Duke of Clarence, dark purple, 17; Navy Blue, blue, 21; Black Knight, very dark, 19; Blanche Ferry, pink and white, 11; Gorgeous, orange and pink, 28; Prince Edward of York, carmine bicolor, 14; Jeanie Gordon, mixed bicolor, 20; George Gordon, mixed bicolor, dark, 17; America, light stripe, 16; Princess of Wales, dark stripe, 16; Lottie Eckford, Picotee-edge, 19. Those who

wish to have further details should consult the pamphlet itself, where they also find statistics showing the number of times particular varieties were exhibited at the leading shows in 1902. The ten best varieties, arrived at by a process of selection and elimination are: Countess of Powis, orange and pink; Fascination, lavender; Golden Gate, lavender-blue, Picotee-edge; Queen Victoria, pale primrose; Stanley, bronzy-chocolate; Duchess of Westminster, pale salmon-buff; George Gordon, carmine standard, paler wings; Lottie Hutchins, pale buff, flushed with pale rose; Oriental, rosy-salmon; Royal Rose, rosy-carmine. Mr. SYDENHAM has taken great pains, and his lists are correspondingly valuable.

M. MILLARDET'S OBSERVATIONS ON VINES.—The services rendered to viticulture by the late M. MILLARDET, the originator of the famous Bordeaux Mixture, are well known to specialists, and M. BORNET, in the *Comptes Rendus* for December 29, 1902, gives an excellent summary of them, from which we extract the following particulars:—"M. MILLARDET, after being assistant Professor at Strasbourg, was transferred to Nancy, and then, in 1876, nominated Professor of Botany to the Bordeaux Faculté des Sciences. He arrived in the height of the devastation caused by the phylloxera, was sent out by the Phylloxera Commission to study the wild Vines of the United States, especially with respect to their insect-resisting powers. He accomplished his work with scientific accuracy of observation and skill in experimenting in the laboratory. M. EMILE PLANCHON had observed that certain of the American Vines resisted phylloxera, but he had not sufficiently gauged their degrees of resistance. M. MILLARDET determined these exactly, and made known the details of variation in wild species and their value as stocks for grafting. He was one of the first to suggest hybridising the European with the American Vines. With the aid of M. GRASSET, he himself raised no fewer than 12,000 hybrids. If some of these did not, as had been hoped, produce Vines capable themselves of replacing the old French Vines, some of them, especially the hybrids raised by crossing the wild Vines among themselves, furnished very valuable stocks for grafting. The planting of resistant species or hybrids was at first undertaken rather at random, as it was not known under what conditions the American Vines grew naturally. But when M. VIALA returned from the United States with precise information containing the circumstances of their growth, it was seen in what direction hybridisation should be done, that the resultant plants should be both disease-resisting and adapted to the various conditions of soil in which they were to be grown. Vine-growers have also reason to remember the investigations of M. MILLARDET concerning various Vine diseases induced by fungus, and particularly by peronospora, mildew, and most important of all, those which brought to light the means of efficiently resisting these pests by the use of solutions of copper, the preparation and application of which were first made known by MM. MILLARDET and GAYON. The former authority will also be remembered for his investigations on the false hybrids of Strawberries which reproduce the type of father or of the mother, but never exhibit the different characteristics of the two parent species in association. These curious results, which the experimenter met with also in Vines and in Brambles, furnish an explanation of facts which hybridisers frequently observe, but for which they had hitherto been unable to account."

THE PRODUCTION OF ORANGES AND LEMONS IN ITALY.—According to recent advices from Naples, the production of Oranges, Mandarin ditto, Lemons, &c., in 1901-2 was about 3 per cent. less than the average annual production. In 1901 the total produce of Italy was 41,815,000 hundreds; last year the figures were 44,085,000 hundreds. The production in the southern provinces formed about 25 per cent. of the whole production, and that of Sicily 72 per cent. The total export of the fruits to the United Kingdom in 1901 was 473,140 quintals.

CHINESE PLANTS.— We understand that Messrs. JAS. VEITCH & SONS have, with great generosity and public spirit, distributed the herbarium of about 15,000 specimens, collected in Central China by Mr. E. H. WILSON on behalf of the firm, among the following establishments:—Kew Herbarium (the most complete set), Kew Arboretum (ligneous plants), Herbarium New York Botanic Garden, Herbarium Paris, Herbarium Edinburgh, Herbarium Dublin, Herbarium St. Petersburg, Smithsonian Institute, Washington, U.S.A.; Hamburgh Botanic Museum, Arnold Arboretum, Boston, U.S.A.; Dr. HENRY, &c.; Dr. MASTERS, F.R.S., *Gardeners' Chronicle*, &c. (Conifers); Dr. CHRIST, Bâle (Filices); JAMES VEITCH & SONS, Ltd. (horticultural plants), E. H. WILSON.

STOCK-TAKING: 1902.—The Board of Trade Returns for the past month and the year just closed are to hand, and of them it may be said, things might have been worse. For the month of December the imports were £48,170,628, against £46,770,097 for the corresponding period in 1901—an increase of £1,400,531. The gains are to be found in raw materials for textile manufactures, manufactured articles, articles of food and drink (duty free), raw materials for sundry industries and manufactures, parcel post, animals (living) for food, and tobacco (dutiable). The exports for the month foot up at £24,219,240, against £24,313,777—a decrease amounting to £94,537. There was a great drop in ships, and heavy rises in metals and articles manufactured therefrom (except machinery and ships), articles manufactured or partly manufactured, and articles of food and drink, machinery and millwork, apparel, &c.; also various raw materials. Turning now to the year's foreign trade, we note the total of £812,400,264, as against £802,012,574—or an increase of £10,387,690. Breaking these up into imports and exports, the former foot up at £528,860,284, as against £521,990,198—an increase of £6,870,086. The greater advances are to be found in articles of food and drink, duty free (over 3¾ millions sterling), but that is almost balanced by the drop in the dutiable branches. There is an increase of nearly 5½ millions sterling in manufactured articles; tobacco increased by over a million, and so also did miscellaneous articles. The decreases range under animals (living) for food, raw materials for textile manufactures, and metals. The following are extracted from the "summary" table of imports during last year, compared with those for 1901:—

IMPORTS.	1901.	1902.	Difference.
	£	£	£
Total value ...	521,990,198	528,860,284	+6,870,086
(A.) Articles of food and drink—duty free	97,675,609	101,452,142	+3,776,533
(B.) Articles of food & drink—dutiable	112,736,817	108,998,634	−3,738,183
Raw materials for textile manufactures	79,286,268	78,570,555	−715,713
Raw materials for sundry industries and manufactures	57,981,249	58,631,448	+650,199
(A.) Miscellaneous articles	17,311,145	18,822,945	+1,511,800
(B.) Parcel Post ...	1,262,462	1,327,588	+65,126

It is worth while noting respecting timber, that the value of last year's imports was £25,189,021, against £24,562,445, an increase of £626,576 over 1901. The record of fruit importation for the year may now be taken in hand, and surely it will well repay such consideration as may be given to it—

IMPORTS.	1901.	1902.	Difference.
Fruits, raw:—	Cwt.	Cwt.	Cwt.
Apples	1,830,210	2,843,701	+1,013,491
Apricots and Peaches	13,463	16,187	+2,724
Bananas... bunches	2,228,672	2,805,700	+577,028
Cherries	212,683	166,359	−46,324
Currants	70,402	76,080	+5,678
Gooseberries	21,735	27,557	+5,822
Grapes	679,885	633,932	−42,952
Lemons...	1,071,534	1,003,288	−68,246
Nuts—Almonds ...	111,322	148,987	+37,665
Others, used as food	904,224	784,160	−120,064
Oranges...	5,281,657	6,518,067	+1,236,410
Pears	348,866	491,906	+143,040
Plums	263,700	541,136	+277,436
Strawberries	38,604	40,211	+1,607
Unenumerated, raw...	535,247	500,679	−34,568
Fruits, dried—			
Currants, for home consumption ...	963,631	1,186,561	+222,930
Raisins „	554,410	604,366	+49,956
Vegetables, raw:—			
Onions ... ...bush.	7,295,418	7,606,119	+310,701
Potatos ... ... cwt.	7,076,726	5,699,090	−1,377,636
Tomatos... ... „	793,995	783,894	−10,101
Vegetables, raw, unenumerated ...value	£389,829	£467,022	+£77,193

Not a word of explanation is here required—each item as set forth, speaks for itself. Firstly, we have briefly to notice the year's

EXPORTS.

The total of these for 1902 were £283,539,980, against £280,022,376 for 1901, an increase of £3,517,604. The increase is made up from metals and articles manufactured therefrom, except machinery and ships; articles of food and drink; apparel, and articles of personal use; all other articles either manufactured or partly manufactured; machinery and millwork, and chemical and mechanical preparations. Among the items of decrease may be noted new ships, raw materials, parcel post, and yarns and textile fabrics. It only remains to express the hope that the increase in next year's returns may be more marked than at present is the case.

CHRISTMAS TREE AT THE CRYSTAL PALACE.—The large Christmas tree standing in the south nave of the Crystal Palace, which has caused such delight to many hundreds of children during the holidays, was kindly given by Mr. J. COLMAN, of Gatton Park, near Reigate. It stands over sixty feet high, and laden with all sorts of good things, was certainly one of the features of the Christmas attractions.

WOODCRAFT.—We are glad to call the attention of our readers to a little treatise on "Sylviculture," by M. MOUILLEFERT, and dealing with the principal forest trees (essences forestières). It is published in Paris by FELIX ALCAN, but may be had from WILLIAMS & NORGATE, or other foreign booksellers. After some introductory remarks on forestry in general, and the conditions under which it may be practised, the author proceeds to consider in detail the Oaks, Chesnuts, Elms, and other trees grown for their timber in France. Illustrations of many of the species are given, together with representations of the wood as seen under a low magnifying power. The principal insect and fungus pests are noted. The book thus contains, within small compass, much that it is requisite for a forester to know.

"PRODROMUS FLORAL BRITANNICÆ."—Mr. F. N. WILLIAMS, in the third part of his useful publication, has not shrunk from the task of preparing and publishing a revision of the British Hawkweeds (Hieracium). We congratulate him on his courage and industry, which must in any case greatly contribute to the understanding of this intricate genus.

THE FUNGUS FLORA OF YORKSHIRE.—A commencement has been made in the compilation of a complete list of the fungi known to occur in Yorkshire. How many more there may be may be conjectured from the circumstance that "nineteen-twentieths of the county yet remain to be thoroughly investigated!" This seems to presage the future appearance of a supplement. Mr. GEORGE MASSEE and Mr. C. CROSSLAND are responsible for the present instalment, which is published at Leeds for the Yorkshire Naturalists' Union.

MOSQUITO-BANE.—Mr. SHIPLEY records in *Nature* the belief entertained in Western Africa that mosquitos are driven away by a particular plant, some leaves of which have been sent to Kew, and have been identified as belonging to Ocimum viride. Captain LARYMORE, the Resident of the Kabba province, northern Nigeria, confirms the notion of the efficacy of the plant, for he says, that by placing three or four of these plants round his bed at night he was able to sleep unmolested without using a mosquito-net. Mr. SHIPLEY collects a considerable amount of evidence to show that the plant has valuable medicinal properties, and may possibly be of service in banishing the gnats, which are the carriers of the malaria poison.

GERMAN PROFESSORS. — In the January number of *Gartenflora* it is stated that the Keepers of the Botanical Museum of Berlin, Dr. ERNST GILG and Dr. GUSTAV LINDAU, have received the title of "Professor." From the same source we learn that the "extra-ordinary" Professor of Botany at Freiburg in Breisgau, Dr. FRIEDRICH OLTMANNS, has been appointed "ordinary" professor of this department. — *Gartenflora, Jan.* 1, 1903, *p.* 32

NATURE STUDY.—The more lectures that are given in the sensible spirit that inspired Mr. HEDGER WALLACE at the College of Preceptors on Saturday, the better for the future of Nature-study, the peace of mind of teachers, and the progress of education. No one wishes to limit the field of operations, or the matters for investigation in Nature-study, the informality of which is its greatest claim to consideration; but what is the good of an educational unknown quantity, in which, as Mr. WALLACE points out, there is no recognised body of principles or practice? Mr. WALLACE also made clear the ridiculous position of some who make Nature-study so beautifully vague and so vaguely beautiful that they cannot explain what it is, though when hard pushed, they sometimes advance what is merely an old and valued friend—elementary natural science. In the address which he gave, Mr. WALLACE also went deeply into what has been done, and laid down some valuable lines of limitation and division of Nature-study, which have recently been strenuously advocated by himself and also others who have the future of the movement at heart. We cannot go into detail, but we may say that, recognising the objects sought, informal "nature-lore" may be separated from "nature-knowledge," which may find a definite place in the time-table.

PROF. ENGLER.—The Director of the Royal Botanic Garden at Berlin, Professor ENGLER, has returned from a successful journey through East Africa. He travelled from Cape Town through the Transvaal to Lorenzo-Marquez, and from there to Tanga, in order to make a longer stay in East and West Usambara. Thence he went to Kilimandscharo, and to Voi, by the Uganda railway, journeying as far as Nakuru. He returned by way of Mombassa to Daressalam, and has brought back to Europe many treasures with which to enrich the Botanic Garden and Museum of Berlin. *Gartenflora, January* 1, 1903, p. 32.

PUBLICATIONS RECEIVED.—From the Agricultural Experiment Station of the Louisiana State University and A. and M. College:—Bulletin No. 66. *Sugar cane: Experiments in Cultivation*, by Wm. C. Stubbs, Director and State Chemist. Bulletin No. 67. *Broom Corn: How to Grow and Cure It*, by W. R. Dodson. "Broom Corn" is a name for Sorghum vulgare. This contribution contains useful illustrations. Bulletin No. 69. *Pecans*, by F. H. Burnette, Wm. C. Stubbs, and H. A. Morgan. The "Pecan" is a species of Hickory—Hicoria pecan. This bulletin is also illustrated.—From the University of Illinois Agricultural Experiment Station:—Bulletin No. 80. *Methods and Results of Field Insecticide Work Against the San José Scale*, 1899-1902 (illustrated), by S. A. Forbes, State Entomologist.—*Vinton's (late Morton's) Agricultural Almanac for* 1903, is the forty-eighth issue of this publication. Its pages are occupied with agricultural statistics, and with such articles as: Field Experiments, by Prof. Wrightson; Progress in Fruit Growing, by Mr. W. E. Bear; Larch Disease, by M. C. E. Curtis, &c.—*Journal of the Department of Agriculture of Western Australia*, November. This contains numerous notes and reports on the Wanneroo district, Cereals at Hamel Experimental Plots, and from other stations.—*The Transvaal Agricultural Journal*, October, vol. i., No. 1. —*The Agricultural Journal, Cape of Good Hope*, December. Contents: Destruction of Rammenas, Cuzco Maize at the Cape, Electro culture in Clifton, Erinosis in Vines, Blue Gums as Forest Trees, by Mr. C. H. McNaughton, &c.—*Circulars and Agricultural Journal of the Royal Botanic Garden, Ceylon*, vol. ii, No. 2. Further Observations on Helopeltis, by E. Ernest Green.—*Annual Report on the Gardens of His Highness Maharana Fateh Singhji Bahadur, G.C.S.I., of Udaipur, Mewar, for* 1901-2. "The season was, on the whole, favourable. The gardens were kept in good order all through the year." —*Annales Agronomiques*. December 25. Containing a memoir of M. P. P. Dehérain, founder and editor of the publication, and well known for other agricultural and botanical work.—*Illustrirte Flora* (Vienna) December, 1902.—*Der Handelsgärtner*, December 27.—*U.S. Department of Agriculture, Division of Entomology*, Bulletin No. 37.—*Proceedings of the Fourteenth Annual Meeting of the Association of Economic Entomologists;* and Bulletin No. 38, *Some Miscellaneous Results of the Work of the Division of Entomology*, vi.—*Journal d'Agriculture Tropicale.*—*Bulletin du Jardin Imperial de Botanique*, St. Petersburg.—*Italia Agricola.*—*Möller's Deutsche Gärtner-Zeitung.*—*Revue de Horticulture Belge.*—*Agricultural News*, Barbados.—*Pharmaceutical Journal.*—*Webster's Foresters' Diary*, Rider & Son.—*Farm and Home Year Book.*—*Bulletin, Agricultural Station, Louisiana and Illinois.* —*English Mechanic.* — *Comptes Rendus Etat Indepondant du Congo.*—*Die Garten Welt.*—*North Riding County Council Technical Instruction Committee.* — *Builder.* — *Botanische Zeitung.* — *Le Jardin.* — *Florists' Exchange.* — *American Florist.*

HOME CORRESPONDENCE.

ENGLISH CHESTNUTS.—Chestnuts quite large enough to be worth eating are produced in this country in favourable summers, and even occasionally at Kew. Not many years ago a sack was sent up from Gloucestershire, and fetched £3 at Covent Garden with a request for a further supply, as it was earlier in the market than imported fruit. Mr. Fisher in his review of Mr. Gamble's *Manual of Indian Timbers*, states that: "The fine Chestnuts grown in . . . . . the South of France come from a grafted variety which will not grow in England." But we grow in the Arboretum at Kew the Marion de Lyons and Gros Merle, and both produce fruit. In these varieties the large size of the fruit appears to depend on only one or two being developed in each involucre, the rest being suppressed. *W. T. Thiselton-Dyer, Royal Gardens, Kew.*

FASCIATION IN VINES.—Some four years ago, I saw at T. Rochford & Sons' about half the Vines in one span-roofed vinery with very distinct foliage, dark and finely serrated. The shoots consisted of a curious mixture, but they were chiefly doubled or flat. The bunches of Grapes also presented much the same kind of defect, and they were with difficulty thinned. The berries were of a good colour but larger and rounder than ordinary ones. Mr. Rochford sent a fine sample to a meeting of the Royal Horticultural Society, but it was passed over. Recently I was asked to inspect an Alicante Vine, which possessed a double rod, the one rod being of the true form, but the other similar to those I saw at the Turnford Nurseries. I can suggest no cause for this kind of malformation, nor suggest a remedy, and I would pull up every Vine thus affected. The lateral growth being poorly matured, the crop gets less annually, the Vines weaken, and many of the spurs die back or refuse to break. It would be folly to propagate Vines from these defective rods. The same thing happened to some Vines of mine some years ago, when residing in Norfolk, and although various experiments were tried, no actual improvement took place, and they were pulled up. We always take it for granted that Meredith raised this variety of Alicante in France, or at least introduced it, else one might be inclined to think it is a sport, and now occasionally the Vine runs back. Meredith was the first to bring this variety into repute. *Stephen Castle.*

SCOTTISH HORTICULTURAL ASSOCIATION.—Having seen a proof copy of the Chrysanthemum show prize-list for 1903, I should like to point out to those in authority the reckless waste of money that is proposed. A new class is introduced, named the Queen Alexandra Prize, offering £15, £10, £7 10s., and £4, as prizes for twelve vases of Chrysanthemum blooms in twelve varieties, three of each, "confined to growers within the municipal boundaries of Edinburgh and Leith." The association is not a provincial one, rather is it international. Its membership is drawn from all parts of the three kingdoms, and competitors from the sister countries exhibit successfully at the annual November show in Edinburgh. Already a class is confined solely to Scottish exhibitors, and known as the "Scottish Cup" class. Now it is proposed to curtail competition by providing more valuable money prizes "for growers within the municipal boundaries of Edinburgh and Leith" than they offer for the whole of Scotland. As well might growers within the municipal boundaries of Glasgow, Dundee, or Aberdeen, have classes provided for them at this our international Chrysanthemum show in Edinburgh. In looking through the recent official catalogues of entries published each year, I note that with one exception, no exhibitor within the "municipal boundaries of Edinburgh and Leith" has ever made an entry in the larger classes for cut blooms. Where are they to come from now? It might be urged that it will encourage new exhibitors to come forward; but why should such a limited area be so favoured above all Scotland? If they cannot gain a prize when competing with other parts of Scotland, should they be encouraged so liberally to show inferior stuff? A sum of £15 in prizes will induce the same amount of competition, and be a considerable saving in money to the association. I cannot think the people of Edinburgh would appreciate exhibits of poor quality having the name "Queen Alexandra" tacked on to it. Rather let our Queen's name be associated with a worthier class for competition than is possible from the limited area of a municipal boundary. *A Country Member.* [We quite agree with our correspondent's contention. ED.]

VEGETABLES AS FOOD. — Mr. Alleyne in his eulogium of the West Indian Yam, Dioscorea Battatas, or the Sweet Potato, Convolvulus Battatas, is treading over well trodden ground. Not only in the past have efforts been made to popularise the Sweet Potato as an article of consumption in this country, but also to get it grown, and so far with no success. With tastes so much in favour of the starch Potato of South America, now one of our great articles of vegetable diet, we seem to have no appreciation for the Sweet Potato of the West Indies, much as that root may be appreciated in hot countries where starch Potatos such as ours are cannot be grown. Writing of the Sweet Potato in *The Vegetable Garden*, M. Vilmorin states that it can hardly be grown in France, and will not grow in England. Now were we to adopt this Yam as an article of vegetable food, we should but be adding to our indebtedness to other countries for our food supplies, and still further be weakening the public taste for those free-cropping, hardier vegetables we can grow at home. I have often thought, should England, Scotland, and Ireland be at any time by act of

war so blockaded that supplies of food from other countries were cut off, what a condition of want and starvation would exist! The suggestion of such a possibility, having regard to the teachings of history, seems wildly improbable, but it is desirable that every contingency should be provided for. In such a case, on what could the nation rely for food so well as upon those immense supplies of vegetables which the land of the kingdom, under high pressure of culture, could produce? Unfortunately, our tastes in relation to food are far from being simple or natural. It is not merely that we have created myriads of wants of an artificial kind that it needs the produce of the whole world to satisfy, but we have become so habituated to the sweet cheap products of hot climates that the taste for home-grown products is weakened rather than strengthened. The vaunted Sweet Potato is not more pleasant to the taste, nor does it contain greater nutriment than does our own Parsnip, but the latter is far from being a popular vegetable, due very largely, no doubt, to the production of large watery roots and cooking them very defectively. Beets are really most nutritive roots, and we can have them, if enough be grown and cared for, nearly all the year round; whilst the Potato is always with us, and no human being would starve, indeed might lead a healthy life if fed on these three roots solely. Beyond these roots, however, what a wealth of wholesome substantial food we could find in Carrots, Onions, Turnips, Salsafy, of Peas and Beans of all kinds, Vegetable-Marrows, Tomatos, in Cabbages, Cauliflowers, Broccolis, Kales, Sprouts, or Lettuces, Radishes, Cucumbers, Celery, Seakale, and many other things, all furnishing fine food first hand, and devoid of all disease-elements. Beyond all that, there could be immensely enhanced fruit supplies if we would but produce them, rather than as we do now, allow millions of acres of land to run almost to waste, producing only trivial crops of food, as compared with what they could be made to produce were they but under spade-cultivation. Were such the case, not only would profitable labour be found for hundreds of thousands of men now seeking work in vain, but our home food supplies would be so enormously increased that all fear of famine, should any outside trouble occur, would be soon swept away. It is to be deplored that in growing rich, the nation is far from being strong, healthy, or wise. We ignore our capacities of production and resource, whilst running after the sweet products or cheap meats of other countries. Some day, perhaps, we may wish we had earlier been wiser. *A. D.*

PAYMENT OF WAGES DURING SICKNESS.—In your answer to "Constant Reader," respecting wages during illness, in *Gardeners' Chronicle*, January 10, 1903, you say a gardener who falls sick, cannot claim, "as a right," wages during such illness. Please allow me to say he has a legal claim. I myself put a gentleman into County Court last July, and recovered eleven weeks' wages for illness. I may say his solicitor offered five guineas in settlement of claim. I refused, and consulted my solicitor; he put in claim for eleven weeks' wages, and the week before trial they paid full claim with costs into court. I shall be glad to give further particulars if required, in confidence to "Constant Reader," if you will send his address. *X.*

LATE GOOSEBERRIES.—I am very pleased, Mr. Editor, to see in your issue of January 10, p. 28, that you put in a word in favour of the humble Gooseberry. I am afraid your correspondent, Mr. Fulton, has not been fortunate enough to be in a locality where the Gooseberry does well, or he would not be so severe in his condemnation of them as a dessert fruit. I can assure him, that the best flavoured varieties, such as Keepsake, Companion, High Sheriff, Green Gascoigne, and Red Warrington are appreciated very much, not only by my employers, but by visitors also, from whom I have heard such expressions as, they "Did not know Gooseberries were so good before." I quite agree that unless well cultivated and kept free from insects, it is almost an impossibility to get good fruit on a north wall so far south as this, where our greatest enemy is red-spider; and I can quite understand that fruit grown under such adverse conditions would not be very tempting to either birds or wasps. Mine are grown both as cordons and bushes; the bushes being 8 feet between the rows, with a 5-feet fence planted with cordons running between each row; from these (if the wasps would only leave them alone), I should have no difficulty in keeping up a supply of fruit well into September. In confirmation of the above remarks, I have a little bit of silver reposing in a case that was once awarded me by the Royal Horticultural Society for a collection of the above. Since then I am known among some of my brethren of the fraternity as *Old Gooseberry*.

HYDRANGEA PANICULATA FOR FORCING.—It may be of interest to "E. B." to know that to-day, when calling on Mr. C. T. Kirby, of North Finchley and Covent Garden Market, I saw a batch of 1,000 of these in pots, standing on the remains of the manure-bed, which had some 12 ins. cut off the tops, and outside a covering of bracken. This I found had been here done for convenience, the plants when received from Holland being tall, and the potting-shed low, there was not room for the heads without cutting down. I trust "E. B." did not conclude that by my statement of reducing top shoots that this was *the* pruning. The fact of any top growth being shortened does not practically affect the plant growth in any way, the probability being that the winter would kill this soft wood to a point far below the point at which the shoot would be cut, but the shorter top keeps the plants from blowing over. According to the season at which plants are wanted to come into bloom, so must the actual pruning take place. Thus February and March, for June and July flowering; April being a good time for August blooming. The pruning, as rightly noted by "E. B.," would then be down to two to four buds. There are exceptions, however, to every rule, as last May I saw a lot of 200 plants that had had the shoots left longer for extremely late flowering, and these did well, excepting that the heads were not individually fine ones. *S. C.*

CROSS-TRELLISES FOR PEACH-TREES.—That good crops of fruits may be gathered from trees planted cross-wise in the house, and for years in succession, cannot be doubted. My earliest knowledge of a house so planted was in 1876, and at that time the house in question was not new, it must have been erected some thirty years ago. The house in question (I forget its name) was in a garden on Sydenham Hill, and adjoining it was "Hitherwood," the residence of the late Latimer Clark, Esq. Not only did the trees so planted produce excellent crops of fruit annually, but the trees on the back wall bore their complement of fruit. If objection could be taken at all, it was to the lack of room for the full development of the trees towards the front. This was apparent at the time of which I write, and was due to the front wall being much too low. This, with the very sharp angle of the house, caused some little disfigurement of the trees, through excessive curtailment of growth. With this item modified, the cross-planting method was not inferior to others, while it afforded space for a larger number of trees than is the case with the usual ones. *E. J.*

SHIPLEY HALL, DERBY.

THE gardens at this place, the residence of E. M. Mundy, Esq., are at all times interesting, but especially so just at the present time, owing to the extensive alterations and improvements in the gardens. A special feature is the construction of a fine pergola from east to west, through the old walled-in garden, and the walk continues at either end, joining the lawn on the east, the famous Beech avenue on the west, thus connecting two distinct parts of the pleasure-grounds. The pergola is furnished with an arched roof and four domes placed at equal distances apart. The wood used is Oak, and the supports consist of slender pillars of brick in cement. Instead of the usual grass or gravel path underneath, ornamental York flagstones are used.

A small rockery connects the pergola with a fernery, planted with a mixture of alpines, now getting nicely established. A path runs through the centre, and is banked with tufa. On the eastern side of the lawn a Lily-pond has been constructed, and numerous species and varieties were in flower on the day of my visit. The pond has a margin of tufa, and forms a pleasing feature, the whole being surrounded with groups of bog and other hardy flowering plants.

In another part of the garden, the head gardener, Mr. Tallack, drew my attention to a border planted entirely with autumn-flowering, hardy, herbaceous, and perennial plants. This idea of planting hardy flowers that come into bloom at the same season all together is a praiseworthy one, and obviates the untidiness usually observed in mixed borders.

The Vines and fruit-trees in the forcing-houses are looking well—the Vines are strong, healthy, and fruitful. Of Figs, I noted a tree of the Brown Turkey, whose branches entirely cover the roof of a large glasshouse, and afford two crops a year. This tree is allowed to grow at will, and no pruning or stopping curtails its growth excepting in the winter, when some strong branches require to be removed to afford space for young growths. The crop this year numbered more than 1,000, and was continuous from May till the end of October.

Some time ago it was considered advisable to remove all of the span-roofed plant and Orchid-houses, so that instead of running east and west as formerly, they should run north and south. These houses are approached from the pergola on either side. Some of these are filled with clean well-grown Orchids, the outcome of many years of collecting. In flower were numerous Dendrobium var. Phalænopsis Schroderi, a splendid strain with highly coloured flowers. Leaf-mould is extensively used with good results, for the plants in general are superior to those grown in peat and sphagnum, but the greatest care has to be exercised in affording water at the roots. The centre of the fruit-house range consists of a large span-roofed house, which is devoted to the cultivation of Anthurium Schertzerianum in great variety, and some of the specimens are of huge size (see fig. 21, p. 45).

There are many other plant-houses filled with plants used for indoor decoration, and for supplying flowers for cutting. Among these is Begonia Gloire de Lorraine, plants of which when in flower are suspended from the roof of the glass corridor with rockery walls, which connects the mansion with the conservatory. The latter was filled with Palms, showing remarkable health and vigour. Fairly large batches of Chrysanthemums, Richardias, Euphorbias, Genistas, Salvia splendens, Francoas, Campanulas, and the usual run of forcing plants are grown. Winter Carnations only are grown in quantity, the selected being Mdlle. Thérèse Franco, Miss Mary Godfrey, R. Godfrey, Lucifer, Firefly, Jubilee, &c.

A long border in the walled-in garden was filled with Roses, and I noticed in various parts of the grounds large beds of the R. rugosa varieties, which flower abundantly in the autumn, a season when the family is in residence. In the upper part of the garden, and to the south of the pergola before mentioned, large quantities of Sweet Peas are grown, supplying cut blooms; and near by were conspicuous lines of Montbretias. The soil at Shipley evidently suits these plants.

Mr. Tallack is a many-sided gardener, and his vegetable gardening shows as excellent results as the other departments of the garden. *G. Burrows.*

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 13.—Although the meeting held on Tuesday last in the Drill Hall, Buckingham Gate, Westminster, was the first in the new year, and the only one that has occurred for five weeks, the sudden decline in temperature since Saturday night was sufficient to prevent the display being large. The cold was so intense on Tuesday that it was a wonder that so many plants even as were shown were subjected to the risks of transit. Orchids were fairly numerous, but they were chiefly cut flowers.

The FLORAL COMMITTEE recommended a First-class Certificate to Coleus thyrsoideus, and three Awards of Merit to seedling varieties of Chrysanthemum. The Road, Chelsea, which occupied one whole side of one of the long central tables. It was composed of Coleus and Begonias. At the back was a double row of plants of the new blue-flowered Coleus thyrsoidens (see *Gardeners' Chronicle*, January 19, 1901, fig. 18), some of them in 8 inch pots, and reaching 3 feet to 4 feet high, with fine erect racemes nearly a foot in length. They well illustrated the effectiveness of this winter-flowering plant, of a colour too uncommon at this season. These were faced with a fine lot of Begonias, including Winter Cheer, Agatha, and Agatha compacta (Silver-gilt Flora Medal). Messrs. Jas. Veitch & Sons also showed the yellow-flowered Lindenbergia grandiflora, figured in these pages, September 20, 1902, p. 213, and Bryophyllum crenatum.

Messrs. W. CUTBUSH & SON, Highgate, London, N., had an attractive group of plants, in the centre of which were some good plants of the old and fragrant Millar Mundy, was shown by Mr. J. C. TALLACK, Shipley Hall Gardens, Derby. The colour of the flowers is crimson, with a silvery flake upon each petal. They are very fragrant, but the calyces appear to burst.

Mr. FYFE, Lockinge Gardens, Wantage, showed flowering sprays of Ipomœa rubro cœrulea.

Messrs. W. WELLS & Co., Earlswood Nurseries, Redhill, showed a pink-flowered Chrysanthemum named C. W. Payne, a sport from Princess Victoria; also a seedling decorative variety named Christmas Crimson.

Messrs. BARR & SONS, King Street, Covent Garden, London, W., exhibited flowers of Christmas Roses. There were several varieties of Helleborus niger, of which Invernis appeared best, and others shown included H. caucasicus luteus, H. olympicus, H. orientalis, &c. There were blue flowered Primroses, Galanthus Elwesii, Narcissus (corbularia) monophylla, Saxifraga Burseriana, Iris stylosa, &c.

FIG. 21.—SPECIMEN OF ANTHURIUM SCHERTZERIANUM WITH SEVENTY SPATHES, CULTIVATED IN SHIPLEY HALL GARDENS.
(SEE P. 44.)

first Chinese Primulas of the season were seen in a collection from Messrs. H. CANNELL & SONS.

The FRUIT AND VEGETABLE COMMITTEE made no award to a novelty. The exhibits included a collection of Black Alicante Grapes from a garden at Hampstead, and some samples of West Indian Yams (Dioscorea) and Sweet Potatos (Ipomœa Batatas).

At a meeting at 3 o'clock, P.M., there were 101 new Fellows, Associates, and affiliated societies, elected to the privileges of the Society.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. C. T. Druery, H. B. May, Jas. Walker, R. Dean, H. J. Jones, J. F. McLeod, J. Jennings, W. Howe, G. Renthe, Chas. Dixon, C. J. Salter, Chas. Jeffries, C. E. Pearson, R. W. Wallace, Rev. F. Page Roberts, H. J. Cutbush, J. W. Barr, J. A. Nix, C. E. Shea, R. Wilson Ker, E. H. Jenkins, R. C. Notcutt, E. Molyneux, J. H. Fitt, M. J. James, Chas. Blick, Ed. Mawley, and George Nicholson.

The most imposing exhibit was one from Messrs. JAS. VEITCH & SONS, Ltd., Royal Exotic Nursery, King's Daphne indica rubra, and on either side of these, small groups of Erica hyemalis, E. melanthera, and E. gracilis, all good, well-bloomed plants, and some dwarf plants of Citrus sinensis, very freely fruited. In addition to these were some beautiful flowers of choice varieties of Carnations, amongst which were Mrs. S. J. Brooks (white), Mrs. T. W. Lawson, Sir Hector MacDonald, pink and white; Winter Beauty, bright crimson; &c. The Souvenir de la Malmaison type was represented by Mrs. Martin R. Smith, Calypso, Nautilus, Jane Seymour, &c. (Bronze Banksian Medal).

Messrs. H. CANNELL & SONS, Swanley, Kent, exhibited a group of plants of Coleus thyrsoideus, Moschosma riparium, and Arum sanctum, all in bloom; also a good lot of Chinese Primulas in single and double varieties. Some of the more conspicuous of the single varieties were Mrs. Kennard, pink; Empress Queen, Eynsford White, White Swan, Snowdon, Eucharis, and Sea-gull (all white); Surprise, purple, shaded crimson; Dr. Nansen, deep crimson; Cannell's Pink, Eynsford Red, and H. Cannell, bright red (Silver Flora Medal).

A new winter-flowering Carnation, named Mrs. Mr. J. RUSSELL, Richmond Nurseries, Surrey, exhibited a group of plants of Aucuba japonica, and A. longifolia, all of which bore abundant richly-coloured berries. A few of the plants were trained as standards 3 feet high (Bronze Banksian Medal).

An unusual feature in the Drill Hall was provided by Mrs. MARY HARRIS, Kinross, Manor Road, Bexhill-on-Sea, who showed two handsome "table centres." They were said to be hand-painted, after being poker-worked on velvet with a hot electric needle. On one were represented Sunflowers, and on the other red Roses, with natural foliage in each case.

A patent tree clip was shown by Mr. W. FYFE, Lockinge Gardens. It is made of steel, and covered with gutta-percha. They have a certain amount of spring, and the tree is forced into the clip, and held by the simple contraction of the clip. Whether they can be made sufficiently cheap for general use, and will hold the tree against strongest winds, must be proved.

Awards.

Coleus thyrsoideus.—This plant has been given an Award of Merit previously, and was illustrated and

described in these pages on Jan. 19, 1901. Shown by Messrs. JAS. VEITCH & SONS, and Messrs. H. CANNELL & SONS (First-class Certificate).

Chrysanthemum Harry Whateley.—This is a sport from the well known variety Niveum. The sport is white, and the florets being forked at the points, the flowers appear fimbriated. It is described as blooming three weeks later than Niveum. From Mr. H. WHATELY, The Nuraeries, Kenilworth (Award of Merit).

Chrysanthemum Miss Edith Davey.—This is a light red-coloured sport from the popular Framfield Pink, which it resembles in other respects than colour. Shown by Mr. MILTON HUTCHINGS, Field-heath Nurseries, Hillingdon, near Uxbridge (Award of Merit).

Chrysanthemum Ruby Martin.—A brownish-red coloured decorative flower, 4 inches across, with narrow florets, slightly forked at points. From Mr. J. J. MARTIN, Linslade Nursery, Leighton Buzzard (Award of Merit).

Orchid Committee.

Present: Henry Little, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), J. W. Potter, H. A. Tracy, W. H. White, W. H. Young, F. J. Thorne, W. Boxall, J. W. Odell, T. W. Bond, E. Hill, J. Charlesworth, H. T. Pitt, W. A. Bilney, F. A. Rehder, W. Cobb, R. B. White, H. Ballantine, and de B. Crawshay.

There was a very fine show of Orchids, although in consequence of the frosty weather many of the subjects which it had been intended to show as plants in bloom had the flowers cut for exhibition, the plants remaining at home.

Captain G. L. HOLFORD, Westonbirt (gr., Mr. H. Alexander), staged a very effective display, principally of cut flowers, arranged in groups with plants of Maidenhair Fern. Among them were two bouquet like arrangements of the handsome bronzy-orange Lælio-Cattleya × Charlesworthi, L.-C. × Sunray, Lycaste Skinneri atro-sanguinea, spikes of Cymbidium × Winnianum, Lælia anceps Schroderiana, and fine examples of about fifty kinds of Cypripediums, including fine forms of C. × nitens, C. × Mrs. Tautz, C. × Mona. de Curte, C. × Facinator, &c. A fine plant of the prettily spotted Odontoglossum crispum "Ian" was also shown with two spikes (Silver Banksian Medal).

Messrs. JAS. VEITCH & SONS, Chelsea, staged a group composed principally of fine hybrid Cypripediums. Fine forms of most of the best varieties of the season were shown, and a very showy novelty named C. × Dryope (Harrisianum superbum × Charlesworthi), with a uniformly rose purple coloured flower, with white margin to the dorsal sepal. Hybrid Dendrobiums, Calanthe × gigas, Cattleya × Elvina, and the remarkable Angræcum × Veitchi (eburneum × sesquipedale) was also shown (Silver Banksian Medal).

JEREMIAH COLMAN, Esq., Gatton Park (gr., Mr. W. P. Bound), staged a very pretty group of cut spikes, elegantly-arranged with Asparagus Sprengeri. They included several fine spikes of Cymbidium Tracyanum, C. × Winnianum, Zygopetalum Mackayi, and the finer Gatton Park variety; good examples of Lælia anceps, Calanthe × Veitchi, C. × Bryan, and C. × Wm. Murray (Silver Banksian Medal).

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. Gilbert), showed the fine Cypripedium × Samuel Gratrix var. Minnie (see Awards), the beautiful C. × Memoria Jerninghamæ, a fine flower of unrecorded parentage, with pure white upper sepal with emerald-green base, purple markings, and broad central purple band; the broad, many-edged petals and labellum were heavily tinged with brownish-purple, except at the margins, which are yellow. Mr. Wellesley also showed two forms of Lælio-Cattleya × Helena var. Miss Laura Webb, with bronzy-orange flowers, and ruby-red colour on the lip, and Cypripedium × Hera punctatissimum.

Messrs. SANDER & SONS, St. Albans, staged a small group of rare hybrids, two of which secured Awards (see list). The best of the others were Cypripedium × Louis Sander (Calypso Oakwood var. × nitens Sander's variety), a very handsome and richly-coloured flower. The upper sepal is white, with a broad purple band and suffusion of rose-purple, the petals and lip being dark bronzy-yellow, with a polished surface; C. × The Durbar (Morganiæ × hirsutissimum), a very distinct novelty, the upper sepal of which is nearly black, with white margin; petals honey-yellow, tinged with rose and spotted with dark purple; lip bronzy-yellow. Others shown were C. × Miss Louisa Fowler, and Zygocolax Wiganianus.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, showed the pretty Lycaste × Balliæ, with thirteen flowers; Cypripedium × Lathamianum splendens, and other hybrids.

Mr. A. A. PEETERS, of Brussels, showed five very finely grown and distinct forms of Cypripedium × anreum, including the rare greenish-yellow and white variety "Surprise," for which M. JULES HYE-LEYSEN, secured an Award of Merit, February 28, 1899. The others were C. aureum Hyeanum, a very large form with a darker tint; C. × a. Œdipe with purple colouring in the dorsal sepal; C. × a. Cyrus, with a broad purple band up the middle of the upper sepal; and C. × a. Virginale, the dorsal sepal of which is white, with a small green base. M. PEETERS also showed C. × Lathamianum splendens, similar to that shown by Mr. CHARLESWORTH.

M. OTTO BEYRODT, Marienfelde, Berlin, sent six fine flowers taken from a large number of Cattleya Trianæi, now in bloom, and ranging from nearly pure white to rose with fine crimson labellum; also Odontoglossum × Adrianæ, and another hybrid of the same class; a peculiar form of Cypripedium insigne, and a finely-coloured hybrid, said to have been imported with Cypripedium callosum.

J. WILSON POTTER, Esq., Elmwood, Croydon (gr., Mr. J. W. Young), showed Cypripedium × J. Wilson Potter, a hybrid of C. × Harrisianum superbum, and a very finely formed and richly coloured flower, of an almost uniform dark purplish-rose colour, the veining being darker in tint, and the margin of the upper sepal white.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr., Mr. J. Davis), showed Cypripedium × Leander reticulatum.

DE B. CRAWSHAY, Esq. (gr., Mr. Stables), showed Lælia anceps Theodora, a pretty white suffused over the whole surface with very pale blush-pink.

Major JOICEY, Sunnydale Park (gr., Mr. F. J. Thorne), sent Dendrobium spectabile, D. Johnsoniæ, and a hybrid Cypripedium.

J. T. BENNETT-POË, Esq. (gr., Mr. Downes), showed Dendrobium spectabile.

J. BRADSHAW, Esq. (gr., Mr. G. Whitelegge), showed Lycaste Skinneri Enchantress.

W. THOMPSON, Esq. (gr., Mr. W. Stevens), showed the fine Cypripedium × Thompsoni.

GEO. SINGER, Esq., Coundon Hall, Coventry (gr., Mr. Collier), sent fine flowers of Cypripedium × aureum Surprise, C. × Mme. Jules Hye, and C. × Olivia.

Baron Sir H. SCHRODER (gr., Mr. H. Ballantine), sent Cypripedium × Lecanum Clinkaberryanum.

Mr. H. A. TRACY, Twickenham, showed Cypripedium insigne Pouparti, a pretty yellowish flower, finely spotted and tinged with chestnut-brown.

Mr. A. WRIGHT, Reading, sent Dendrobium × Cybele, with the erroneous record (nobile × Jamesianum).

H. E. GORDON, Esq., Aikenhead, Glasgow (gr., Mr. Boucher), showed hybrid Cypripediums between C. Druryi and C. Boxalli superbum, and C. Harrisianum and C. insigne punctatum violaceum.

Awards.

FIRST-CLASS CERTIFICATE.

Cypripedium × *Hindeanum* (Godefroyæ × insigne Harefield Hall variety), from Messrs. SANDER & SONS.—A noble flower with the dwarf habit characteristic of bellatulum and Godefroyæ hybrids, and the massive flower of fine substance to be expected with the C. insigne Harefield Hall as a parent, this being probably its finest progeny. Upper sepal large, cream-white, veined and spotted purple. Petals broad, primrose colour, tinged and marked with purple. Lower sepals nearly round, whitish, with spotted lines of purple; lip and staminode yellow, tinged with rose.

Odontoglossum × *Wallonienne* (crispum ♀, polyxanthum ♂), from W. THOMPSON, Esq., Walton Grange (gr., Mr. W. Stevens).—A very beautiful hybrid, which might easily be mistaken for a large yellow form of the best type of O. crispum. Sepals and petals broad, the latter slightly fringed; canary-yellow, with a darker golden hue on the sepals; lip broad, slightly fringed, whitish-yellow, with one large, irregular, reniform, chestnut-brown blotch in front of the callus. All the evidence of the brown spotting of O. polyxanthum consisted in a single obscure brown blotch on one of the segments.

AWARDS OF MERIT.

Cypripedium × *Samuel Gratrix var. Minnie* (Lecanum superbum × nitens superbum), from FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. J. Gilbert).—A perfectly formed flower of great beauty. Upper sepal large, flat and circular, pure white, with a green base, and uniform purple spotting on the lower two thirds; petals and lip broadly proportioned, glossy, yellow, tinged with purple-brown.

Cypripedium × *Empress Alexandra* (Godefroyæ × nitens), from Messrs. SANDER & SONS.—A distinct and pretty flower. Upper sepal greenish at base, white on the upper half, and with dark purple markings; petals and lip tinged with purple of various shades.

Odontoglossum Lucasianum var. Walkeri, from Messrs. HUGH LOW & Co., Bush Hill Park.—A supposed natural hybrid of O. Hallii, the form of which species it closely approaches, the yellowish-white labellum spotted with red-brown being similar to that species. The sepals and petals are dark brown, tipped and slightly margined with yellow.

Fruit and Vegetable Committee.

Present: A. H. Pearson, W. Poupart, J. Willard, Geo. Wythes, Jas. H. Veitch, Geo. Norman, F. Q. Lane, J. Jaques, H. Markham, Ed. Beckett, Horace J. Wright, W. Fyfe, W. Pope, A. Dean, S. Mortimer, W. Bates, Jos. Cheal, O. Thomas, G. Kelf, and M. Gleeson.

A dish of fine fruits of Pear Beurré Rance was shown from Earl ILCHESTER'S garden at Holland House, Kensington (gr., Mr. Dixon), (Vote of Thanks).

Messrs. SUTTON & SONS, Reading, exhibited some good heads of a new Broccoli, known as Superb Early White. They had been cultivated without any protection having been afforded, and the variety is described as being unusually early and hardy.

Samples of West Indian Yams (Dioscorea) and Sweet Potatos (Ipomœa Batatas), from the Barbados, were shown by Messrs. WILLIAM PINE & SONS, 114, Commercial Road, Portsmouth, who import the roots in quantity. These were referred to in a note published in the *Gard. Chron.*, Dec. 20, p. 484. Circulars were placed with the roots, which described several methods of using these foods practised in the West Indies. This information was supplied originally by the Imperial Department of Agriculture for the West Indies, with a view to creating a demand for the products in this country.

Mr. R. C. NOTCUT, Wood's Nursery, Woodbridge, Suffolk, exhibited some fruits of Pear Winter Orange, a variety suitable for stewing, which has been shown on former occasions.

A collection of twenty-eight bunches of Black Alicante Grapes was shown by W. SHUTER, Esq., Hampstead (gr., Mr. T. Armstrong). The bunches were of fair average size, and the berries well coloured, especially as they were cultivated within 3 miles of Charing Cross (Silver Banksian Medal).

MEETING OF THE CHAMBRE SYNDICALE AT GHENT.

JANUARY 5.—At the meeting on the above date of the Chambre Syndicale des Horticulteurs Belges and the Société Royale d'Agriculture et de Botanique of Ghent, the following Certificates of Merit were awarded:—For three Phalænopsis amabilis var. Rimestadiana, from M. TH. PAUWELS (*par acclamation*); for Cattleya rubescens (C. dolosa × C. labiata, from M. A. PEETERS, of Brussels (*à l'unanimité*); for Cymbidium Tracyanum hyb. Hookerianum × giganteum, from M. L. DE SMET-DUVIVIER; for a group of Begonia Turnford Hall, from M. PYNAERT VAN GEERT (*par acclamation et avec félicitations du jury*); for Lælia autumnalis atro-rubens, from the Marquis DE WAVRIN; for Cypripedium Madame Alfred Janssens (callosum × Curtisii superbum), from MM. JANSSENS & PUTZEYS, of Merxem, Antwerp; for C. Putreysii (Albertianum × Sylhetense) (*à l'unanimité*), and for C. Caroline (Chantini × Boxalli), both these also from MM. JANSSENS & PUTZEYS; for cut Chrysanthemums (*à l'unanimité*), from M. FIRMIN DE SMET; and for a cut flower of Cattleya labiata, from M. F. DE BIEVRE, head gardener of the Royal houses at Laeken.

CHESTERFIELD AND DISTRICT CHRYSANTHEMUM.

JANUARY 8.—The annual meeting of this society was held on the above date, Mr. Steele, head master of the Central Schools, presided. The hon. sec., Mr. W. R. Bloxham congratulated the society on the success attending the show of spring flowers held in April at Wingerworth Hall, and the autumn exhibition of Chrysanthemums; and also the members of the Chesterfield Society for having won the Cup and £5 offered by the Sheffield Chrysanthemum Society for competition by affiliated societies.

Mr. Burr, F.G.S., the hon. treasurer, presented the balance sheet for 1902, showing the society to be in a healthy financial condition. Beginning the year with £13 7s. 1d. in hand, to which the year's working brought in receipts amounting to £191 4s., making a total of £234 11s. 1d. The sum of £ 32 12s. 5d. has been expended, £11 10s. given to gardening charities, £10 to the Chesterfield Hospital, and there is a balance in hand of £49 18s. 2d. The show of spring flowers, by invitation of J. E. Clayton, Esq., President for 1903, will be held at Thornfield House on April 22; and the Chrysanthemum show at the Stephenson Memorial Hall, Chesterfield, on November 11 and 12.

Places at which spring shows have been held under the auspices of the society during the past eight years are Ashgate Lodge, Tapton Grove, Ashgate House, Wingerworth Hall, Tapton House, Whittington Hall. The committee will again provide vans where necessary for the conveyance of plants to the spring show, but gardeners and amateurs will receive no other reward beyond that which comes from a knowledge of having assisted to carry out the objects of the society—to foster the love of flowers in the midst of much that is unlovely, and to help the gardening and other charities from time to time.

Schedule of prizes for the autumn show to be revised; and a paper on "Pruning" is to be read on January 22.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 8.—A fine display of plants was made on this occasion, and several groups were worthy of special notice.

Mr. J. CYPHER, Cheltenham, had a very good collection of plants, amongst which were two fine specimens of Cypripedium × Leeanum var. giganteum, C. × Leeanum var. magnificum, C. × Leeanum Cypher's var.; C. Leeanum var. burfordense, C. insigne Sanderæ, C. i. Harefield Hall var.; half-a dozen splendid plants of Sophronitis grandiflora; Angræcum sesquipedale, and several fine forms of Lælia anceps. A Silver Medal was awarded to this group.

O. O. WRIGLEY, Esq., Bury (gr., Mr. Rogers), staged a nice group of Cypripediums, for which a Silver Medal was awarded. Cypripedium Pollettianum var. superbum, received an Award of Merit; similar Awards were made to C. × Melia and C. × Tityus var. superba; Cattleya chocoensis var. albens was also shown in the group.

M. A. A. PEETERS, Brussels, exhibited several good Orchids, the choicest being Cypripedium × aureum var. Surprise, which received an unanimous vote of a First-class Certificate. This lovely plant has now passed into Mr. S. Gratrix's collection. Other plants shown by this well-known cultivator which received notice from the Committee were Cypripedium × Cardosoanum, C. × Madame A. Bleu, both of which were given Awards of Merit, and for the collection a Bronze Medal was awarded.

G. W. LAW-SCHOFIELD, Esq., Rawtenstall (gr., Mr. Shill), who, we are happy to know is rapidly recovering from his recent serious illness, staged several good Cypripediums, a few of which have already been dealt with by the Committee. Two new seedlings, the parentages of which are unknown, received first-class Certificates. C. × Adrastus var. Mariæ, C. × Thompsoni, C. × Cyrus, were also shown. A Bronze Medal was awarded the exhibitor for this group.

S. GRATRIX, Esq., Whalley Range (gr., Mr. Cypher), received a First-class Certificate for a beautiful form of Cattleya Percivalliana called West Point var.; and an Award of Merit for Cypripedium × "Great Rex," the parents of which are C. insigne Sanderæ × C. villosum.

JOHN COWAN & Co., Ltd., nurserymen at Gateacre, received an Award of Merit for Cypripedium × "Kubele," of which the parents are C. œnanthum × C. Youngianum.

Messrs. HUGH LOW & Co., Bush Hill, Enfield, received a Bronze Medal for a miscellaneous group, the same Award being given to Mr. A. J. KEELING for a group consisting mainly of good forms of Cypripedes. *P. W.*

ABERDEEN CHRYSANTHEMUM.

THE annual meeting was held in the Union Club Buildings, Aberdeen, on Saturday evening, 10th inst., when Mr. William Bisset, the Chairman of the Society, occupied the chair. The annual report, which was read, showed that there was an increase in the membership and in the funds of the Society. The exhibition held on Nov. 21 and 22 last, was most successful, and there were about fifty more entries than in any previous year. The quality too of the exhibits was excellent. The financial statement was also favourable, the credit balance for the year being £23 9*s.* 8½*d.*, the total funds now amounting to the respectable figure of £139 18*s.* 8*d.* In moving the adoption of the report, the chairman characterised the year's transactions as most successful, and extended to all who had contributed to the success of the year's working the thanks of the Society. Mr. J. D. Smith seconded the motion, which was unanimously agreed to. The following gentlemen were elected office bearers for the ensuing year:—Chairman, Mr. William Bisset; Vice-chairman, Mr. G. C. Minty; Secretary and Treasurer, Mr. M. H. Sinclair. A committee of twenty members was appointed, who will form the executive for the present year. The date of this year's show was fixed for November 20 and 21. A motion was put to the meeting that the show should last for three days, instead of two, as in former years, but it was rejected by a large majority. Messrs. W. McHattie and William Cocker were elected auditors.

SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.

ON Monday evening last, the Annual Dinner of the above Society was held at the Imperial Restaurant, Strand. Mr. Thomas Bevan occupied the chair, being supported by a numerous company, both English and French, among whom were, Mr. Geo. Schneider, the President of the Society; Mr. Geo. Nicholson, late of Kew Gardens; Mr. S. T. Wright, of the Royal Horticultural Society Gardens, Chiswick; Mr. Harman Payne, Mr. H. J. Jones, Mr. Drost, Mr. B. Wynne, Mr. W. Cutbush, and others.

The first toast to be honoured was that of the 'King," which was proposed by the Chairman, the company joining in the singing of the National Anthem.

Mr. George Nicholson then followed with "the health of the President of the French Republic," which was accompanied by the Marseillaise.

Mr. Schneider in a few appropriate words, then proposed "the health of the Chairman," reminding those present that his title to occupy that position, was that he had not only worked as a gardener in France, but had kept in touch with what was being done on both sides of the Channel, and had preserved a friendly regard for his continental confrères.

In his reply, the Chairman briefly alluded to the good work the Society was doing, which was largely owing to the excellent feeling that existed amongst its officials. Not only were places found for young

THE LATE JOHN McKENZIE, GARDENER AT LINTON PARK.

Frenchmen in England, but also places were found for young Englishmen who desired to go on the Continent; several of these being also present that evening. It was stated that the Society annually found situations for about eighty young men in this way. As one who knew the difficulties that beset young men on setting foot for the first time on foreign soil, he was sure that the young friends present much appreciated what the Society did for them in every way.

Mr. Schneider replied in the name of the Society, reviewing past work and reminding them that fifteen years ago no one could foresee the progress the Society was destined to make. This he was grateful to say was largely helped by the kindness of English friends in the nursery trade, who made a point of taking some of their young men. He was glad to see there present several young English gardeners who had in like manner been abroad. He would ask them to drink to "the health of the visitors;" which was very cordially done.

Mr. Harman Payne replied for the visitors, and Mr. B. Wynne for "the Press."

Mr. S. T. Wright felt it to be a great honour to meet so many French gardeners; he thought that such meetings could not fail to increase the bonds of friendship between two great nations, who had done so much for the civilisation of the world.

Songs and recitations were given by various friends of both nationalities, and a presentation was made to Mr. George Schneider of a pair of gold sleeve links as a mark of respect from the young members of the Society. Several new members were proposed, among whom were Mr. Peter Kay, of Finchley, who also sent an invitation for the members to visit his establishment during the summer. Others included Mr. S. T. Wright, Mr. Sander of St. Albans, Mr. Lewis Castle, &c.

CROYDON & DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

THE annual meeting of the Croydon and District Horticultural Mutual Improvement Society was held at the "Sunflower" Hotel, George Street, on Tuesday evening, when Mr. W. J. Simpson was in the chair. Mr. Frank Lloyd was re-elected President, and Mr. G. Curling was added to the list of Vice-Presidents, all of whom were re-elected. Mr. P. F Bunyard once more undertakes the duties of treasurer, while Mr. H. Boshier fulfils the onerous post of hon. secretary in the place of Mr. J. Gregory, who resigned his position on account of the pressure of other engagements. The Chairman and Vice-Chairman were re-elected. A quantity of new blood was elected to the committee, which may do the society some good

The report and balance-sheet were read, the latter showing the society to be in a very flourishing condition.

The annual dinner took place on January 22, and was well attended, 105 taking part. The annual summer outing took place on August 27, the places visited being Paddockhurst and Werth Park. A special vote of thanks is due to Mrs. Montefiore for her subscription of £2 towards defraying the expenses of the outing. The committee regretted that the prizes offered to young members for an essay on "Propagation" had not met with more success, only one member having sent in for the competition. They also regretted to report that the contributions to the Gardeners' Orphan Fund box had fallen short of the previous year, the amount this year being only 6*s.* 4*d.* Mr. Bunyard moved the adoption of the report, and said the society was in a fairly healthy condition. Mr. Harris seconded, and the report and balance-sheet were unanimously adopted.

THE HORTICULTURAL CLUB.

JANUARY 13.—At the monthly dinner of this Club, at the Hotel Windsor, held under the chairmanship of Mr. HARRY VEITCH, on Tuesday, Mr. OWEN THOMAS, V.M.H., read a paper on "The wasted opportunities in fruit and vegetable culture among the rural population." Mr. Thomas's remarks had for their chief object the holding of a special Conference for the purpose of discussing and remedying the difficulties at present attending fruit and vegetable culture by the rural population on the land available for such purposes. A fundamental need, apart from education such as is being afforded by County Council lecturers, is that of establishing some connection between producer and consumer, thus ensuring the labourer some reward for his extra toil on such allotments of, say half an acre, which Mr. Thomas advocated should be provided for him, mainly for fruit and perennial vegetable culture, which involve the minimum of arduous labour. In the subsequent discussion, which was a lively one, participated in by such authorities as Messrs. Assbee, H. Veitch, Pemberton, T. W. Sanders Reed, Waterer, C. Pearson, Amos Perry, and others Mr. Perry cited the case of the Dutch labourers, who, by intelligent co-operation, manage to grow extensive crops of Onions, Gherkins, Cauliflowers, &c., for pickling purposes, to store them in brine, wait their opportunity, and eventually sell them to good advantage to our pickle manufacturers here; an eloquent example of what our own people ought to do, and could do, if they would throw off their old-fashioned conservatism, and learn to do things on the right lines. The entire discussion, as well as the paper itself, was fraught with instruction, but space precludes entering into full details, which will, however appear in due course in the Royal Horticultural Society's *Journal*.

Obituary.

J. McKENZIE.—The portrait upon this page represents the popular Scottish gardener, whose death at Linton Park, near Maidstone, it was our painful duty to publish last week. John McKenzie passed away on the first Sunday in the new year. Two years ago he was stricken down with a severe illness, which it was hoped he had overcome, but a return of the disease proved fatal in spite of his strong constitution. We take from a local paper a few details, and hope to publish a fuller account of his career in our next issue. Mr. McKenzie was ever ready to help a young man on the start of life, never happier than when playing with children and amusing them with stories of his own childhood, or explaining in simple phrases to them some of Nature's workings. He had a memory full of anecdote, and was a broad-minded, well-read man, beaming with good nature and sympathy in the work of his

contemporaries. Small wonder that so many met to pay their last respect at his graveside. For over twenty years he had charge of the gardens and grounds at Linton Park, in which post of trust he enjoyed the entire confidence of his employer, and the esteem of the staff under him. At the Crystal Palace, the Aquarium, and other exhibitions, his face and figure were well known and heartily welcomed, and his successes as an exhibitor were on a large scale. At the fruit exhibition at the Crystal Palace in September last, Mr. McKenzie was particularly successful in the classes for single dishes of Apples; and in 1897 he won 1st prizes in twenty-nine classes. His mature knowledge of Apple-culture, the treatment of Vines, the different varieties of Conifers, the growth of Chrysanthemums, and other horticultural subjects, kept him in constant correspondence with all the leading gardeners and growers of the day; his garden was his main study, and he did right well that which was his special task.

Regarding his enthusiasm for Apple-culture, we remember Mr. McKenzie remarking to us four years ago, when he accompanied us through the beautiful grounds at Linton Park, that he could never lose that enthusiasm. His exact words were as follows: "When once a gardener has undertaken fruit-growing with zest, he can never give it up. The love of it will remain with him to the end. I have grown Chrysanthemums as a specialist, and have been enthusiastic in the showing of other plants; but Chrysanthemums lost their novelty. Fruit has not, nor will it."

Mr. McKenzie, who was once foreman in the gardens at the Viceregal Lodge, Dublin, leaves a widow and four children, all grown up, two sons and two daughters. The loss of two children some years ago was a terrible blow to the deceased, who was so greatly affected that he rarely visited a horticultural exhibition for three years afterwards.

MARY WOODMAN. — We note in the *Daily Telegraph* of January 7 an announcement of the death of Mary Woodman, on January 1, at Huratmonceux, Sussex, widow of the late William Robert Woodman, M.D., of Exeter, aged sixty-five. The lady's husband has often been mentioned in the *Gardeners' Chronicle* in connection with the nurseries of Lucombe & Pince of Exeter; and quite recently a correspondent, Mr. W. Napper, sent us a note concerning some furniture made from the Lucombe Oak in the possession of the doctor's widow.

TRADE NOTICE.

MR. G. P. BENT, late nurseryman at Flixton, near Manchester, ceased to carry on business some years ago, a fact that he made public at the time.

ANSWERS TO CORRESPONDENTS.

ACACIA MAIDENI: *M. B.* The following is the reference for which you ask:—F. V. Mueller, in Macleay Mem. Linn. Soc., New South Wales (1893), 222, t. 29, ex *Index Kewensis*, Supp. i., p. 2.

ADDRESS: *Enquirer.* We hope to print it in our next.

BOOKS: *M. S. H.* The only book on the subject that is worth studying is now out of print, and may only be met with at the old book shops.

CARNATION DISEASE: *W. P.* There are several diseases of these plants. Can you not send for inspection an affected plant?

CARNATION BLOOMS NOT BURSTING THEIR CALYCES IN 1901, BUT DOING SO THIS YEAR: *L. A. W.* The bursting may be due to excess of vigour, and the calyces not being strong enough to the pressure of the petals. Last year there may have been less vigour in the plants.

CHRYSANTHEMUM CHANGING THE COLOUR OF ITS FLOWERS: *E. W. E.* We have no knowledge of any such change in colour being induced by soils, as in the case of Hydrangeas. There are slight variations in tint induced by rich feeding and bud selection, but that is all.

CHRYSANTHEMUM LEAVES: *B. H.* The leaves are affected by the grub of leaf-miner, a two-winged fly. Hand-picking is the only remedy.

CORRECTIONS.—HORTICULTURAL BUILDINGS IN PARIS: We understand from our correspondent, M. Grignan, that the Galérie des Machines at the Champs de Mars has not yet been taken down, as we lately led our readers to understand, but that its demolition will probably be effected this year. Also, that the temperature in the conservatories at Cours la Reine during the last days of the autumnal exhibition was —4° C. (24·8 F.), and not 4° C. as priuted. In the "Orchid Houses" Calendar in our last issue, for Vall's Beetle-traps, read Vall's "Beetle-cute." Lælia × autumnalis cinnabarina, on p. 19, read Lælia × autumnalo-cinnabarina; and delete the words "after whose son it is named" in the third line.

CROTON DISEASED: *Croton.* No disease, perhaps the appearances are due to too deep potting, and to sudden alternations of temperature and moisture.

CYMBIDIUM LOWIANUM: *Enquirer.* That which you purpose doing should bring the plant back to health and vigour. The pot should be of good size, so as easily to accommodate the long, fleshy roots. Do not afford more water than will just keep the materials moist till growth of roots recommences. It should be placed in the Cattleya-house, or one similarly treated.

DISEASED MUSHROOMS: *J. A.* The disease unfortunately is not uncommon, but without remedy. The gills are distorted and swollen, and rotting soon follows. It is caused by a fungus parasite which some ascribe to Mycogone alba, but your specimens do not afford sufficient evidence to affirm what is the specific parasite that has caused the mischief. The beds must be destroyed, and the place thoroughly disinfected. It should not be used again for Mushrooms for two or three years, until it is entirely free from fungus spores. *M. C. C.*

HYACINTHS: *J. G.* The tips of the roots are dying or dead, from some cultural defect which you must know better than we can tell you; the soil is good.

NAMES OF FRUITS: *W. J. K.* 1, Lady Henniker; 2, Round Winter Nonsuch; 3, Sweet Lading; 4, Gooseberry Pippin; 5, too small for recognition.—*Cerus.* 1, Hollandbury; 2, Ashmead's Kernel.—*H. B. S. C.* Apple Pile Russett.—*Hortus.* 1, Léon Leclerc de Laval. The rest were either bruised or rotten, and beyond recognition; send a week or two earlier next season.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. P.* All three are varieties of Cypripedium × Leeanum, the largest one being equal in size to C. × L. giganteum. Many forms of this plant have already been named, and yours are not distinct enough to warrant distinctive names. —*Veritas.* Not a Lælia, but an imperfectly formed Cattleya Percivalliana.—*A. D. Weston.* Eriobotrya japonica (Loquat), an edible fruit.—*Paddy, from Cork.* Polypodium vulgare (common Polypody). Yours is a very good form of it. It is often sold in small quantities by florists.—*G. C.* 1, Euonymus japonicus medio-aureus; 2, Euonymus japonicus variegatus; 3, Euonymus japonicus; 4, Euonymus latifolius argenteus. The Rhododendron is one of the hybrida of Rhododendron arboreum. — *T. C.* 1, Rhœo discolor vittata, commonly called Tradescantia discolor vittata; 2, Niphobolus Lingua; 3, Carex japonica gracillima of gardens.—*G. W. S.* 1, Pinus, perhaps muricata; 2, Abies amabilis; 3, Picea sitchensis; 4, Cedrus, perhaps Deodar; 5, Abies amabilis; 6, Atriplex Halimus; 7, Baccharis halimifolia. It is almost impossible to name some of the Conifers without seeing the cones.—*J. W.* 1, Tillandsia Lindeni; 2, Billbergianutans; 3, Dracæna Sanderiana.—*W. D., Bedford.* 1, Cupressus Lawsoniana; 2, Juniperus excelsa; 3, Thuya gigantea; 4, Retinospora squarrosa; 5, Taxus baccata; 6, Cupressus Lawsoniana var.

PAYMENT OF WAGES DURING ILLNESS: *G. F.*, and *X. Y. Z.* Since our last issue was published, we are informed that the gardener being regarded at law as a "domestic," and as such a yearly servant, can demand that his wages be paid him for the time he is incapacitated by illness. See case, p. 44, in the present issue.

PROPAGATION OF SHRUBS AND TREES: *H. S. Winton.* The information you require is scattered through many different works, and cannot be obtained in one volume. As regards methods of propagation in the briefest possible terms, you would find *The Nursery Book*, by L. H. Bailey, Rural Publishing Company, New York, of use. It can be obtained through a foreign bookseller.

RATING NURSERY LAND: *Enquirer.* On p. 130 in our issue for August 12, 1899, is an account of the decision arrived at in the Court of Appeal, presided over by the Master of the Rolls, who upheld the distinction between "land" and "buildings;" and this judgment was agreed with later by the Lord Chancellor, together with Lords Watson, MacNaghton, and Morris, with the result that those portions of market gardens under glass are in future not to be rated as agricultural land, but are to be assessed on the same scale as land on which immovable buildings are constructed. Your cottage garden with its glasshouse is rightly assessed at the higher value, and the landlord who has paid the rate hitherto must also pay the higher rate.

ROMAN HYACINTH: *W. L.* There is no disease, but the top-growth has taken place before the roots were produced to support it.

SERVANTS' TAX: *H. C.* It is customary to have the gardener and his foremen, if any is employed, taxed; but not boys and garden workmen. Your employer or his estate-agent should appeal against the payment in such a case.

SOUVENIR DE LA MALMAISON CARNATIONS GROWN IN GARDEN FRAMES IN WINTER: *A. W.* There is no mystery about the cultivation of this practically hardy plant. Grow the plants under glass without codling; afford air by day and night abundantly when there is no actual frost. Apply water only when the soil has got into a really dry condition. Place the plants so that the foliage nearly touches the glass, keep it clean, also the glass, and do not syringe it. Vaporising or fumigation are the best means of destroying insects, and sponging about the worst. If artificial heat can be applied to mitigate the effects of the dampness, always a danger in the winter in a frame, it would be beneficial.

TOMATOS GOOD FOR FORCING OR OTHERWISE: *Oxonian.* Frogmore Selected, scarlet fruited, and Veitch's Golden Jubilee, both heavy croppers and handsome fruits.

VIOLET BARONESS ROTHSCHILD: *E. W. E.* We do not know. Apply to a large grower of Violets, or hardy flowers. We cannot recommend dealers.

VIOLET AMIRAL AVELLAN: *E. W. E.* Princess of Wales is the more popular variety, not the Amiral. Perhaps the blooms have the longer footstalks when grown under like treatment. As you know, the distance of the plants from the lights causes differences of this sort.

ZONAL PELARGONIUMS AND FUCHSIAS: *Oxonian.* Of the former choose double Henri Jacoby, Erl König, V. P. Raspail, Rosa Bonheur, and Colossus, all double flowered; or Aurore Borealis, Barbara Hope, Chaucer, Edward VII., Gen. Buller, single-flowered vars. Of the latter, choose alba coccinea, Beauty of Trowbridge, and Delight, single-flowered; and Avalanche and Kinaburyana, double-flowered.

COMMUNICATIONS RECEIVED.—J. Roberts—C. A. B.—R. Cairns.—J. R. J.—G. M.—W. R.—E. R. R., we shall be pleased to give what assistance we can.—F. W. B.—W. M. W.—S. R. G.—W. R.—W. H. D.—J. H. V.—W. J. B.—W. E. G.—M. B.—G. G., Paris.—A. G.—J. A. C. C.—J. K. & Sons.—E. Clarke.—H. S. N.—The Electrical Standardizing Testing and Training Institution.—Youngster.—W. R. F.—J. M.—H. J. C.—J. M., Hants.—J. J. W.—A. K. B.—H. T. M.—W. W.—J. H. & Son.—P. N. B.—E. C.—W. A. C.—A. McL.—W. T.—F. Kraenzlin.—P. F.—J. T. Y.—T. F.—W. B.

(*For Markets and Weather, see p. x*)

A Flower Garden at Bowood.

THE
Gardeners' Chronicle

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GARDENING UNDER GLASS.*

THREE years ago I read a paper on "Gardening under Glass," in which I dealt with the construction of plant-houses, and temperatures, shading, ventilation, water, and soils, in their relation to indoor gardening. This paper was afterwards published in the *Gardeners' Chronicle* in January, 1900. In the present paper I propose to deal with the subjects of water, light, air, and heat, in so far as they affect the growth and health of plants, particularly those grown under glass. The cultivator who has some knowledge of how a plant grows, and how its growth and health are influenced by these factors, has an advantage over the cultivator who knows nothing of them.

WATER.

"It is a fact that the older a gardener grows, the more care he takes in the watering of his plants; for year by year his experience teaches him more definitely that careless watering is the indirect, if not the direct, cause of a very large number of the diseases of plants. The difficulty in watering lies in the fact that plants require various amounts of water, according to their species, their age, their situation, the season of the year, and their actual state of health or development. The amount of water which is sufficient at any given time may be very much too large a month later, and may therefore cause considerable injury." *Sorauer.*

Water forms not only the bulk of the plant itself, it is also the medium by which all the food-salts from the soil, and essential to growth, are supplied to it. These salts are made available by the action of water, as they can only be absorbed by the roots in the form of aqueous solutions. In addition to the water retained by the plant for purposes of growth, large quantities also pass through it and evaporate through the leaves, in much the same manner as most of the water supplied to the soil in watering a plant after passing through the soil escapes through the hole at the bottom of the pot. Kerner describes this process of transpiration as a perpetual stream running through the living plant whilst growth is active, and points out that the supply of water must be regulated with exactitude if the nutrition is not to be disturbed or development hindered.

A healthy plant requires a larger supply of water at the root when growth is vigorous, than it does when growth is nearly or quite at a standstill. We do not always, however, in practice make that difference in the quantity supplied which this knowledge should lead us to make. On the contrary, many gardeners appear to believe that the soil about the roots of all plants in leaf should always be wet. The injury that results from this is due largely to the fact that soil requires aëration if plants are to be healthy in it, roots requiring to be supplied with fresh air just as much as the upper portion of the plants do; for all the living parts of a plant breathe, obtaining oxygen from the air as animals do, and when they cannot obtain it they are suffocated and die. Now, if the soil is always saturated with water, air cannot get to the roots; moreover, acids, and other injurious compounds, are formed in the soil, and these act as poison to the roots. It is the craving for fresh air that causes the roots of a plant to cling to the inside surface of a pot, and to creep down amongst the drainage, where the supply of air is greater, as a rule, than in the soil itself.

The injurious, and often fatal, results of excessive watering are not always recognised, and are too often set down to some other cause.

More harm is done to plants by overwatering than by the other extreme; this is especially the case in winter, when the conditions are unfavourable to growth. The sickness and death so prevalent among plants in that season are largely, if not entirely due to excessive watering.

A comparison of the usual condition of the soil in which plants make healthy growth in the open air with that of pot-grown plants under glass will show that, although the supply of water in the former case is not excessive, yet growth is healthier and better in every way than that made under glass. A Rhododendron or a bedding Pelargonium growing in the open border is rarely, if ever, saturated at the roots, the water passing away too freely for this to happen, even in wet weather; and yet they grow and flower better than when grown in pots and regularly watered. The careful cultivator weighs all the conditions that affect growth: when the light is defective and the temperature low, growth is sluggish or quiescent, and the water required by the plant is then little or none.

The nature of the plant itself must not be overlooked. Some plants, particularly those that have fleshy roots and large leaves, will do with a liberal allowance of water at all times. Succulent plants, the leaf structure of which is such as to prevent loss of water from transpiration, may be kept dry at the root for long periods without suffering, although when they are growing vigorously under the influence of bright sunshine they enjoy copious supplies of water. Generally, plants with small leaves and fine hair-like roots, require careful watering at all times.

"All perennial plants have a period of rest. It is either the cold which stops all vital processes, or, as in tropical regions, the excessive drought of the hot season. During this latent period plants require very little nourishment, and even those greenhouse plants which retain their green leaves require an infinitesimal amount of water and of nutritive salts." Good cultivators of Orchids recognise the need of this period of rest, for all Orchids, after new growth has been made, the duration and nature of the rest being varied according to the nature of the plant. Thus, a Dendrobium which, whilst growing, revels in water, requires a long, dry rest after growth has been made; whereas an Odontoglossum is sufficiently rested if the supply of water is withheld from the roots for a month or six weeks. Many plants appear to grow and flower without this rest; but only for similar reasons to those which account for some men living under conditions which are opposed to the laws of health.

The transpiration or perspiration of plants may now be considered. The breathing pores or "stomata," which are generally situated on the under-surface of the leaves, under favourable conditions give off water in the form of vapour, in quantities varying with the moisture of the surrounding atmosphere; in other words, plants perspire freely in a warm, dry atmosphere, and less freely in one that is moist, in much the same way as animals do. Anything that interferes with this function is as bad for plants as it is for animals. There are in the leaves of plants numerous ingenious contrivances for regulating transpiration, the pores opening wide when the conditions favour the free escape of moisture, and closing when they are unfavourable. The flagging of leaves caused by drought has the effect of closing the stomata, so as to stop the further loss of water. The rush or "perpetual stream" of water from the roots to the leaves, other conditions being favourable, is the accompaniment of active, rapid growth. We should therefore endeavour to maintain just that condition of soil and atmosphere which will keep this stream moving.

What happens when we keep the soil as wet, the air as moist, and the temperature as high in winter, when light is defective, as we do in the height of summer, when light is good? We find that the growth made is often of a sickly yellowish hue, and wanting in what we call "bone," indicating that some essential has been wanting whilst growth was forming. Growth made in insufficient light cannot be healthy. There are

* Paper read before the Kew Mutual Improvement Society, January 5, 1903, by Mr. W. Watson, Curator.

of course, many plants, such as those used for forcing in winter, which appear to make perfect growth in these ill-balanced conditions, but we know that they require much nursing afterwards to restore them to a healthy state; indeed, a plant that has been severely forced is, as a rule, only fit for the rubbish-heap afterwards.

There is a marked difference between the growth and behaviour in winter of the plants in the drier houses and those in the moist houses at Kew. If a plant has proved refractory in a stove, we have sometimes found it worth while to try it in No. 5, wherein the succulent plants are grown, and generally the results have been satisfactory. The air in this house is always drier than in any other,

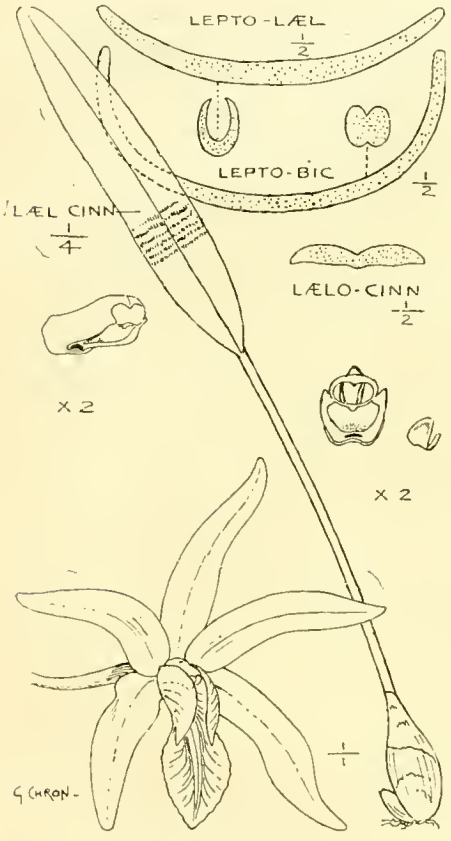


FIG. 23.—LEPTOLÆLIA ×.

Above placed across the figure are reduced illustrations of the leaves of Leptolælia ×, and of Leptotes bicolor with cross-sections. The larger leaf stretching from the top to the bottom of the illustration is that of Lælia cinnabarina, one-fourth of the real size; to the right of it is a cross-section; and lower down the column of the hybrid, seen from the front with a separate pollen-mass (magn. 2 diam.). To the left of the reader is the column seen from the side, and at the bottom the complete flower of the hybrid of the real size.

especially in winter, when very little water is given to the plants.

The success of our grandfathers in the cultivation of plants which we can scarcely keep alive, such as hard-wooded Cape Ericas, Phœnocoma, Aphelexis, Genetyllis, &c., was, I believe, largely due to the care they took over the watering. This was considered by far the most important of the gardeners' duties; and it was by no means unusual for the head gardener to attend to it himself—for all his best specimens, at any rate. I have seen fine specimens of Erica killed in a week by an overdose of water at the root. *W. Watson.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

LEPTOLÆLIA ×: A BIGENERIC HYBRID.

A HYBRID between two reputed genera of Orchids is likely to be of interest to orchidists, whatever view they take of the facts. The hybrid in the present case was raised in the establishment of Messrs. James Veitch & Sons, and was exhibited by them last spring before the Royal Horticultural Society. It was raised out of Leptotes bicolor by Lælia cinnabarina.

Leptotes was considered by Bentham as not generically different from Tetramicra, a circumstance which does not affect the assumed bigeneric character of the plant, though it may raise a question as to what should be the correct designation of the plant. For the present we adopt the name Leptolælia × Veitchi, under which name flowers and leaves were sent to us for examination. We may briefly refer to the leading characteristics of the two parents, and of the resultant hybrid.

Lælia cinnabarina has an oblong or ovoid pseudo-bulb, from whose apex springs a solitary leaf, with a stalk about 19 cent. long (7½ ins.), bearing an oblong blade about 23 cent. long (9 ins.), 4 cent. wide (1½ in.), flattish, except along the centre, where it is deeply depressed on the upper surface, and marked on the same surface with transverse wavy wrinkles.

The flowers of Lælia cinnabarina are of a reddish-orange colour, the sepals and petals lanceolate, the lip convolute and crisped.

Leptotes (or Tetramicra) bicolor, the female parent of our hybrid, has a rudimentary pseudo-bulb, and its leaves are spreading, often overhanging the sides of the pot in which it is growing, 14 to 15 cent. (5½ inches) long, 4 to 5 mill. wide, cylindric, strongly curved, deeply channelled above and below, as shown in fig. 23, marked "Lepto-bic;" and also in fig. 24, seen in section, and magnified 15 diameters.

The flowers are white, sepals and petals narrow, lip three-lobed, lateral lobes short, front lobe oblong, nearly as long as the petals, white, streaked with purple.

In the hybrid plant the leaves are erect, curved, about 11 cent. (4½ inches) long, neither flat nor cylindric, but deeply folded or "conduplicate," as shown in the enlarged section at B, fig. 24.

The flowers (see fig. 23) are about 4 cent. (1½ inch) long, with spreading, lanceolate, cream-coloured segment, flushed with pink; the petals of the same shape, but rather narrower than the sepals. The projecting lip is about the same length (25 mill.) as the outer segments, three-lobed; the lateral lobes about 1 cent. long, somewhat roundish, oblong, convolute over the column; anterior lobe 15 mill. long, oblong, lanceolate, flattish, undulate at the margins, yellowish near the base, elsewhere palo rosy-pink. The anther-cap was cushion-shaped, with a terminal lilac tip, and two small projections, one on each side. The pollen masses were imperfect in the flower examined, arranged in two pairs with a fifth smaller and imperfectly developed, waxy, obliquely oblong, ovoid compressed.

This description, of necessity imperfect, may nevertheless be of interest, as showing how curiously intermediate the hybrid was between its parents. *M. T. M.*

THE WEATHER FORECASTS.

IT is one of the venerable beliefs of mankind that the weather is in some way controlled by stellar or lunar influences. Three centuries B.C. Aratus looked to the constellations for signs of coming changes in the weather; and to-day, in the twentieth century A.D., it is still a common belief that the moon is in some way responsible for the weather we enjoy, or which we have to endure.

Mr. Hugh Clements, whose name has for some years past been more or less familiar to readers of the daily papers as the author of certain weather forecasts, is a lunarist who professes to have found a complete explanation of all terrestrial weather changes; and in the volume entitled *Natural Law in Terrestrial Phenomena*, an attempt has been made to explain his methods and the results at which he has arrived. It is, however, rather curious that this explanation does not emanate at first-hand from Mr. Clements himself, but from Mr. William Digby, C.I.E., a disciple who appears to have quite recently studied Mr. Clements' work, but to have become so much impressed with it that he has now stepped forward as Mr. Clements' champion.

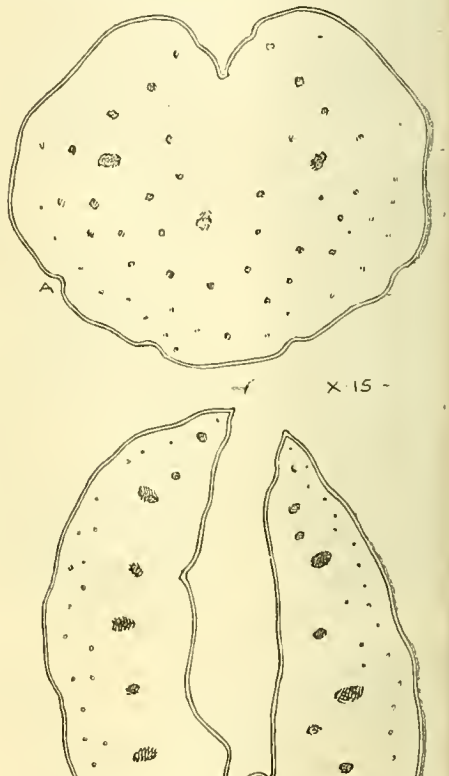


FIG. 24.—CROSS SECTIONS OF LEAVES.
(*Magnified.*)
A, Leptotes bicolor. B, the Hybrid.
(See Text.)

Mr. Clements finds in "the tangential pull of the moon" the cause of every variety of atmospheric phenomenon; and we are told that "certain combinations of the sun and moon produce in the atmosphere of the earth certain results. Given those combinations, and they are ever being repeated in harmonious sequence, the results are always identical" (p. 267). Mr. Clements himself says (p. 281) "every 186 years the apsidal, nodal, and tidal positions of the moon are similar; the result being that at intervals of 186 years there is very considerable agreement in the character of the weather, e.g., the years 1692 and 1693 were the exact meteorological counterparts of 1878 and 1879." When such a statement as this is made, one has a right to expect that it has been in some way verified. It is, therefore, disconcerting to find on the next

page an admission of the fact that, "we have no detailed daily information of the weather 186 years ago," with which to make a comparison.

But, indeed, dogmatism of this kind is a characteristic of too many of the statements contained in the book. Weather is not the only thing capable of prediction by means of Mr. Clements' "discovery." Earthquakes and volcanic eruptions are, we are assured, capable of as certain prediction as rainfall and the height of the barometer.

We cannot think that the present effort of Mr. Digby and Mr. Clements attains its avowed object as an explanation and justification of Mr. Clements' "discoveries." The claim made that they "solve existing problems in relation to the weather," and that they have been "fully demonstrated on the lines of strictly scientific research," is, in our opinion, hardly justified. The truth of a statement does not depend upon the emphasis with which it is asserted, but so far as the data given in the volume enables us to judge, there is no other justification as yet for the statement made on p. 334, that "The truth of the matter is, I can predict the weather for any number of days, weeks, months, or years ahead, upon a scientific system from which the element of chance is eliminated."

Unfortunately for th statement, under the heading of "Samples of Weather Predictions and Verifications," Mr. Clements gives us an opportunity of testing the accuracy of some of his forecasts. For instance, on p. 330, we find his predictions for every day in February, 1895, placed side by side with a description of the actual weather recorded on each of those days at Greenwich Observatory. Now, if a comparison be instituted, it will be found that some rain fell on fourteen days during that month at Greenwich, bnt for only five of those days was any rain predicted by Mr. Clements. Then, again, on five other days when rain was predicted in the same month by Mr. Clements, there is no record of any rain having fallen at Greenwich. After this, it can scarcely be contended that the element of chance has been altogether eliminated from Mr. Clements' forecasts.

Messrs. Clements & Digby, like all previous upholders of lunar influences on the weather, having failed to make good their claims, we are reluctantly compelled to revert to the opinion held by all leading meteorologists, and that is, that in the present state of our knowledge, it is impossible with any degree of certainty to forecast coming weather in these islands for more than about twenty-four hours in advance. For that reason alone, such "long distance" forecasts as those issued by Mr. Clements must always be received with considerable hesitation. *Edw. Mawley.*

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

SOME years ago you kindly gave me a portion of your valuable space to give my ideas to my fellow gardeners on the good work done by the above-named Institution; while acknowledging to the full the excellent letters on the same subject by other writers up to quite recently, I am writing to ask you to give me a small amount of space once again. Like other supporters of the Gardeners' Royal Benevolent Institution, I have recently received my voting-paper for the recent election. As on previous occasions, it shows a great amount of needy cases. There were forty-six of them all examined by the committee, yet only fifteen vacancies. What a number of them must be disappointed! My main object in writing is to bring to the notice of the rising generation of gardeners the hopelessness of non-subscribers being put on the pension-list in the future. The practical application of the new rules, which for my purpose is summed up in Rule 3, Section 5, will bear out my statement. I would urge all gardeners who may be disposed to put off the good day of becoming subscribers to send for a copy of rules, and read it carefully over. Under that rule all have to be elected, whether subscribers or not. The main advantage the former get is that for every guinea sent to the Institution they will receive a hundred votes if at any future time they are candidates for the Pension Fund. This is only simple justice to the subscribers, and I for one congratulate the committee on putting it on the statute-book. To illustrate my statement, we will suppose one man, say at forty, pays a guinea each year up to sixty-five, and another at forty-five pays ten guineas as a life subscriber, that both are anxious at sixty-five to become pensioners, the former would have 2,500 votes to start with, and the latter 1,000. Of course, being a Benevolent Institution, there is the odd chance of the late or non-subscribing candidate being elected, but the risk is a great one. Once again I would appeal to gardeners as a body to make up their minds in time and become subscribers, and also to the wives of the married ones to spur their husbands on and help them in doing it. I feel sure they will never regret the matter if carried out. If it will help them in doing this, I do not mind saying that when I paid my first guinea in 1880 I had not another guinea in the world, and had seven motherless little children in my house. It was the late Mr. Wildsmith, of Heckfield, who urged me to do this, and if for no other reason, I respect his memory for it. On referring to the last published list of subscribers, I find much fewer than a thousand of them are gardeners, and yet the *Horticultural Directory* contains fully ten times that number! Why not be as anxious to have one's name in the former as well as the latter? *Yorkshire Gardener, Jan.* 12, 1903.

ODONTOGLOSSUM × WALTONIENSE.

OUR illustration (fig. 25) represents this fine yellow hybrid between Odontoglossum crispum ♀ and O. polyxanthum ♂, raised by Mr. W. Stevens, gr. to W. Thompson, Esq. It received a First-class Certificate at the Royal Horticultural Society's meeting on January 13, and was duly noted in our report of the show (January 17, p. 46). Considering the very marked character of the brown blotching on O. polyxanthum, it is singular that so little evidence of it is seen in the hybrid, which is practically a bright yellow O. crispum with a large reddish-brown lip. It is one of the finest of home-raised hybrid Odontoglossums.

FIG. 25.—ODONTOGLOSSUM × WALTONIENSE.

BOOK NOTICE.

THE FORESTS OF UPPER INDIA AND THEIR INHABITANTS. By Thomas W. Webber, late Dg. Conservator of Forests in India. (London: Edward Arnold, 1902.)

MR. WEBBER, the author of this very interesting book, is already known as the writer of an excellent account of the "Natural Oak Forests of Sussex," in a volume of *Reports on Forest Management*, published by the Government of India in 1873.

The present volume gives a vivid account of the author's life in the forests of India, with his travels in the Himalayas and Thibet, and although much is said about forests, there is probably more about travels and sport, for as he says: "I have always found a good rifle and a kukri (Gurkha hunting-knife) the most useful weapons; whilst to be able to ride on an elephant all day without feeling the sun, and to camp-out in all seasons of intense heat on the plains, and of intense cold on the highest hills in the world without taking fever, and to be always ready for a long march on foot, horse, or elephan t

and for a good venison steak at the end of it, were the most approved capabilities of a forest officer." Mr. Webber had the good luck to be in the Indian Forest Department from 1861 to 1871, when its chief work was the selection of reserved forests, and long and indefatigable marching was indispensable, while his lot was chiefly cast in the North-West Provinces of India, with probably the finest climate in the world from November till April, while he could spend the scorching months of May and June in the cool hills.

The account he gives of the habits of the wild forest creatures is most picturesque, and shows the instincts of the true naturalist, as well as of the keen sportsman. The elephants, buffaloes, tigers, bears, monkeys, wild hunting dogs, deer and antelopes, and the great Himalayan sheep, are all described in their respective haunts; while peafowl, pheasants, partridge, quail, and the Indian bustards, are all depicted. The following extract shows the wealth of bird-life in India:—

"The trees are swarming with beautiful bright birds, and green pigeons cooed softly in them. The pretty little turtle-doves picked on the path at grain, and fluttered in the bushes; and light-running hoopoes raised their fan-like crests, chasing the insects. Everywhere flying is the lovely little metallic sun-bird, which dances as it flies, wings expanded as a butterfly, and then sails kite-like with angular tail spiked with two long feathers. There are twenty species of Indian sun-birds, so profuse is the supply with which Nature decorates the landscape. Some are purple, and some yellow, and they shine in every sun-ray. Their little nests, like pears, hang by a cord from the ends of boughs near the ground, and are beautifully woven. High up in the dark recesses of the Banyan-tree, one hears all day the 'coppersmith' striking his anvil with metallic twang, the crimson-crested green barbet with thick strong bill. There are sixteen species, large and small, and they are very industrious."

The hill and plains-people are sympathetically dealt with, and the account of the Hunias is most amusing. These people live in Hundesh, beyond the Tinkar Pass, and are subject to Thibet. The following description is given of their country:—

"To the south, the best roads are but dangerous tracts, where the most surefooted might slip and fall into depths unseen. To the north is an endless stretch of smooth surface, where a coach and four might be driven without fear of an upset. To the south is a climate where the rainfall for half the year is 200 to 300 inches, and the snow-line 16,000 feet above the sea. To the north an almost rainless climate, with a snow-line at an elevation of 19,000 to 20,000 feet. Towards India, dense forest; to the north, not a tree in a thousand miles, or perhaps ten thousand; not a bush to be seen, scarcely a blade of grass—nothing but stones, gravel, shingle, or clay. To the south, a region of rains and torrents, perpetually roaring and cutting up the soil into an endless network of deep ravines and water-courses. To the north, vast and arid plains where, except for scantily melting snow, no water was to be found."

Here the difficulty was to cook food, as water boils at 180° instead of at 212°; but the Hunia cavalry, who were met on their little rugged ponies by the Thibetan Government to stop Mr. Webber's party, form a most ridiculous picture when we compare them with their ancestors, the formidable Huns described by Gibbon, with whom Attila overran Europe. The kiang or wild ass inhabits these plains, and is well described; while the geological changes that have taken place are well shown by the fact that huge ammonites 4 feet across are found in the rock-formations of Thibet at about 18,000 feet elevation. Mr. Webber speaks very highly of the Bhutias, and says that their children are nearly as well taught as European children.

The Sal forests of India are well described, but the author is wrong in stating that this valuable forest tree grows in Mysore and Tenasserim. In Jhansi, south of the Ganges, the teak is first met with, as this tree cannot withstand the frosts of N. India; and here the African Baobab also grows 50 feet in girth, and 40 feet high. The destructive practice of jhúming (termed dáhya in Central India), is also described, and its pernicious effect on forest-growth shown, as well as the excellent results in the regeneration of the forests that are due to fire-conservancy. Wolves appear to abound in Central India, and kill many children.

Teak grows rapidly in the Satpura Hills, saplings being said to reach 25 and 30 feet in the second season—straight stalks, with half a dozen leaves at the top. A good description is given of the fine teak plantation made in 1844-57 by Mr. Conolly, and 3500 acres in extent. The trees, 1000 to the acre, were to be thinned out to 70 to the acre, of 225 cubic feet each, at 60 years old.

The account of the Máhua tree (Bassia latifolia) states that in Monghyr there were in 1878 over a million of these trees, each producing annually 2 or 3 cwt. of corollas, which fall to the ground in March and April. The natives collect and dry them as an article of food, which saves thousands from death in famine years, as it is a crop which never fails, however dry the season. From the sweet stuff, which keeps dried any length of time, like raisins, the natives distil Máhua spirit, which can be easily freed from essential oils, and makes an excellent spirit, resembling whiskey; while Máhua oil is three times as valuable as linseed oil, being as good as Cocoa-nut oil for candles. In Monghyr these trees yield 100,000 tons of nourishing food annually, and the Sonthals in consequence suffer no famine, and are a plump and happy race.

The book terminates with an Appendix on the scientific treatment of forests. Mr. Webber states that recent land legislation in Ireland and succession duties place a premium on the destruction of home woodlands, and that if one-tenth of our waste lands were planted, their proceeds would pay the interest on the National Debt, £25,000,000 a year, as their capital value would be £200,000,000, compared with the actual value £900,000,000 of the German forests. To the objection that home timber is of inferior quality, he replies that Scotch Pine found in Irish bogs contains timber of great length and thickness, sound, fine-grained, solid, and straight, and so excellent that it is used by coach-builders as superior to Memel timber, or the finest mahogany. Where such timber grew, 10,000 years or more ago, similar material might be produced to-day if the woods were properly managed. To prove this he gives the actual dimensions of Scotch Firs grown in Ireland:—

Grown 30 to the Acre, with Spreading Crowns.		Grown 200 to the Acre, with Small Crowns.
Girth	5 feet	5 feet
Height	50 feet	75 feet
Age	40 years	Age 100 years
Diameter ...	20 ins.	Diameter 20 inches
Rings, per inch, 4, uneven		10, regular
Heartwood ...	12 ins.	19 inches
Sapwood... ...	8 ins.	1 inch
These trees are quickly grown on deep, soft soil, liable to be blown over; timber coarse, knotty, light and perishable; fully 4 inches of sapwood.		These trees were slowly grown on a hillside on poor and stony soil; standing close they resist storms. The timber is fine-grained, hard, heavy, durable, and equal to best Memel; scarcely any sapwood.

There are several good maps to illustrate the author's travels, although there is a want of scientific accuracy in some of the statements made, and the author's Indian experiences are about thirty years old. The general tenour of the book is very good, and it gives a most graphic account of a very interesting subject, and should be in the library of every lover of Indian forests. *W. R. Fisher.*

THE RAINFALL AT ROTHAMSTED IN 1902.

According to the records from the rain-gauge at the Rothamsted Experimental Station, Hertfordshire, which was constructed fifty years ago, and is one-thousandth part of an acre in dimensions, stands 2 feet above the surface of the ground, and is about 420 feet above sea-level, we find that the rainfall for the year 1902, recently ended, amounted to nearly 21 inches, which is $7\frac{6}{10}$ inches below the average record for this district, extending over a period of forty years.

The following table shows the rainfall of each month for the past year at Rothamsted, with the average amount of rainfall for each month of the previous forty years, and the difference of 1902 above or below the average:—

Rainfall at Rothamsted, Herts, for each month of the year 1902, and the average and total yearly rainfall.

Months.	Rainfall, 1902.	Average rainfall of forty years.	1902. Above or Below the Average.*
	Inches.	Inches.	Inches.
January	0·83	2·47	−1·64
February	1·25	1·74	−0·49
March...	1·49	1·73	−0·24
April	0·83	1·97	−1·14
May	2·20	2·34	−0·14
June	3·33	2·42	+0·91
July	1·24	2·72	−1·48
August	3·54	2·60	+0·94
September	1·05	2·60	−1·55
October	1·88	3·20	−1·32
November	1·95	2·65	−0·70
December	1·39	2·21	−0·82
Yearly total ...	20·98	28·65	−7·67

* The sign (−) signifies below the average, and the sign (+) above the average.

The above figures show that the yearly total of rain, frost, and melted snow, of which there was about an aggregate depth of 2 inches from ten small falls, for the past year is 20·98 inches, against an average of 28·65 inches for the previous forty years, showing a deficiency in the twelve months of 7·67 inches. There were but two months in the year, namely, June and August, when the rainfall exceeded the average record, consequently there were ten months of deficiency. This is the smallest yearly rainfall since 1898, when 20½ inches only were measured. Notwithstanding this small amount of rain, there were but 63 days out of the total 365 for the year when the gauge was quite empty. The number of recognised rainy days, when the gauge recorded 0·01 of rain or more, was 168. The maximum fall in twenty-four hours occurred in June, and gave 0·72 inch.

In the previous year of 1901, the deficiency of rain at Rothamsted was 5·48 inches; this amount, added to the deficiency of 1902, makes a shortage of 13·15 inches of water in the two years. In order to understand what this deficiency of 13 inches of rain means to our natural springs of water, and to vegetation, it may be explained that this amount represents a total of 1,328 tons of water, equal to the enormous quantity of 298,817 gallons of water on each acre of land; accordingly the well-springs and other supplies of water in this district show a falling off which is thus easily to be accounted for.

During the past year the more shallow-rooting plants did not appear to suffer much for the lack of moisture, the constant small deposits of rain, with the comparative absence of hot summer sun, kept them going; but very deep-rooting plants, such as fruit trees, suffered considerably. There was an abundance of fruit blossom formed, but the greater portion of this fell to the ground; and on Apple-trees, even after the fruit was set,

much of it dropped prematurely, and a large proportion of that which remained developed but indifferent fruit.

The heavy rains of June assisted the grass-crops, also the corn, so that nearly average returns were obtained. The constant rains of August, however, considerably damaged the crops of Wheat after they were cut, and there was much sprouted grain to be seen in the shocks as they stood in the fields. This is now deteriorating the quality of the output of grain from the threshing-machines. *J. J. Willis, Harpenden.*

CULTURAL MEMORANDA.

HIPPEASTRUMS FROM SEEDS.

HIPPEASTRUMS having been brought to such a state of perfection, it is no wonder that we often see them in comparatively small collections. But alas! how often we see them grown in a very unsatisfactory condition, sometimes mere bulbs just existing in pots either altogether too large or too small, often with half the soil washed out by a very careless use of the watering-can; and yet these lovely greenhouse bulbs are very easily managed, provided ordinary careful treatment be accorded them.

During the flowering period, when the plants are giving a wealth of colour, is the time to mark the best forms for seed production. In selecting the different forms individual taste will, of course, play an important part; some growers prefer self-coloured forms, others have a fancy for the striped ones. There is, however, one hard-and-fast rule that can be laid down, viz., that only the strongest plants should be selected for the production of seed. If this rule is rigidly adhered to, the result will be large and well filled pods of seeds, from which consequently strong seedlings may be expected.

It is good practice not to allow more than two pods on each plant to ripen seeds, as more than this number are detrimental to both seeds and parent bulb. Should any particular flower be fertilised by its own or other pollen, it is safer to enclose the whole flower or flowers in a piece of muslin, to prevent bees or other insects carrying foreign pollen to the stigma. After fertilisation has taken place the pods soon begin to swell, and do so rapidly until they burst and expose their black seeds; these are ready for sowing at once, and the sooner they are sown the better, as they germinate more quickly than if allowed to lie by for a time.

The seeds may be sown in the ordinary seed-pan, which suits them admirably. The pans should be thoroughly clean and well crocked, with a layer of coarse leaf-soil placed over the crocks. A light sandy soil should be prepared and made quite level, not forgetting to press the whole moderately firm, especially in the corners if the pan be a square one. When all is ready, place the seeds evenly over the surface about 1 inch apart, and cover lightly with soil; give a good watering with a fine rose-can, and place the pan in a temperature of from 65° to 70° F., in a close and shaded part of the house. The seedlings appear in about one month, and should be kept moderately moist. Having made good growth in the course of the year, they should be taken carefully out of the pan, and transplanted 4 inches apart into beds of rich and coarser soil than that used for the seeds. By planting them out into a prepared bed of soil much time and labour are saved, and also a larger percentage of the plants. The potting-up from the seed-pan cannot be recommended, as this method entails too much labour, and is not nearly so satisfactory. By the planting-out system I have had seedlings in flower in less than two years. When in the bed, the syringe should be freely used morning and afternoon to keep down red-spider and thrips, and to promote a moist, growing atmosphere.

After having been planted in the bed for two seasons, the bulbs should be carefully lifted, taking great care that all roots are left intact; they should be sorted into two sizes, the larger to be placed in pots, and the smaller ones to be replanted in the bed to be ready for pots the following season.

The larger bulbs may be placed in 5-inch or 6-inch pots, which should be thoroughly clean and well drained. A good compost consists of equal parts of good turfy loam, leaf-soil, and coarse sand, with a sprinkling of Clay's Fertiliser. A good plan to adopt when the bulbs are freshly potted is to plunge them to the rim in Cocoanut-fibre or spent tan. Little water is needed until growth has commenced, and at no time does the Hippeastrum like a large quantity of water. I have for a long time been convinced that there are more Hippeastrums killed or crippled by a too copious supply of water at the roots than by any other means.

There seems also to be an idea among some that the Hippeastrum cannot be grown satisfactorily without a great deal of heat. As a matter of fact, they may be grown without any artificial heat whatever during the year. Forms of H. vittata will even stand a few degrees of frost, providing they are dry at the roots, and dormant. I have had this form frozen in pots, and have brought them round safely by syringing them with ice-cold water, and placing them in a dark frame for three days, where the thermometer registered 34° F. I marked these bulbs, and placed them amongst the others in the house; when they flowered, they were apparently none the worse for their being subjected to frost, the size of flower and the colour being as good as in those treated in the ordinary way. *J. W. Miles, Isleworth.*

CYPRIPEDIUM × HINDEANUM (GODEFROYÆ × INSIGNE HAREFIELD HALL VARIETY).

A FIRST-CLASS Certificate was obtained by Messrs. Sander & Sons, of St. Albans, for this noble cross, at the Royal Horticultural Society's meeting on January 13. It supports the fact which we have often urged, that where fine forms even of common species are used in crossing, remarkable results are to be obtained. The plant is of dwarf, compact habit, and the flower of fine form and substance; indication of the rich marking of C. insigne Harefield Hall var. being plainly distinguishable. The upper sepal is cream-white, with pure white margin and dark purple spots; lower sepals whitish with purple spots. The remainder of the flower honey-yellow, tinged and marked with purple.

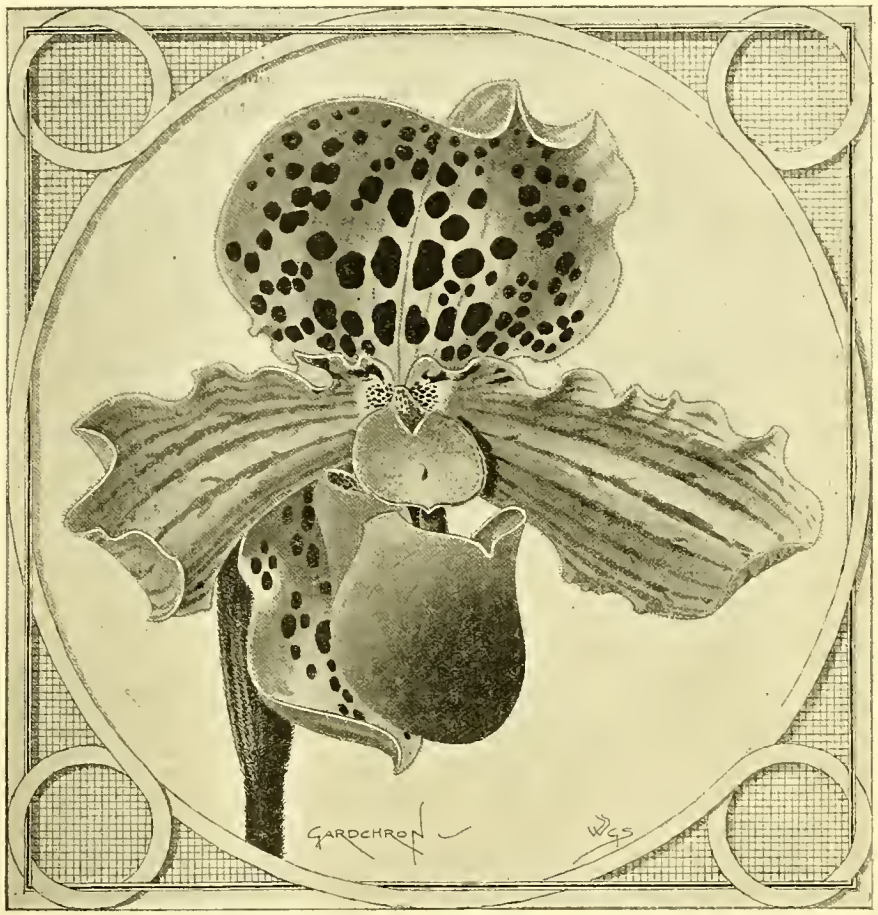


FIG. 26.—CYPRIPEDIUM × HINDEANUM.

"WEBSTER'S FORESTER'S POCKET DIARY," published by W. RIDER & SON, 164, Aldersgate Street, is a convenient and useful little publication, the value of which is in inverse ratio to its size. In addition to the ordinary contents of a diary, there are numerous articles and tables of special interest to foresters.

The Week's Work.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Dendrobiums. — The deciduous species and hybrids of these plants having been afforded a long rest in a cool, airy house, are now pushing forth flower-buds. The most forward of these, that have their buds separated from each other, should now be moved into the intermediate-house, and afforded a little more water at the roots, to enable them to expand satisfactorily. The earliest to flower are D. Cybele, D. melanodiscus, D. xanthocentrum, D. Schneiderianum, D. Clytie, D. Aspasia, D. Aurora, D. Clio, D. Wiganianum, D. Ophir, D. Findlayanum, D. crassinode, D. Wardianum, and the numerous varieties which flower in late winter and early spring. New growths will soon arise from the base when given warmer quarters, and water will still require to be applied carefully, as any excess may cause the loss of many young growths. The flower-buds on plants which flowered freely last year, and failed to make strong growth, should be removed, which will have the effect of strengthening the growth this year. Dendrobium Wardianum is a species which is imported in quantity, and the plants grow satisfactorily for a few years, but they soon get exhausted from excessive flowering. Newly imported plants received at this season should be thoroughly cleaned and suspended in a cool-house for a few weeks, and then potted and placed in a light plant stove or similar house.

The Odontoglossum-house.—Many plants in this house will now be showing flower-spikes, and keen watchfulness will be needed to capture slugs and snails. Lettuce-leaves, sliced Carrots and Potatos, may be used as bait, and a small quantity of bran in small saucers, placed about in the house. These baits should be inspected the last thing at night, and a search made for the pests amongst the plants by lamp-light. Cotton-wool placed around the base of the flower-spikes will sometimes prevent slugs from injuring the spikes. Very valuable plants should be placed on inverted flower-pots standing in saucers containing water. Even the small shell-snails do much damage to the tender roots, and should be sought for in the potting material. A genial even temperature must be kept in this house at this season, never allowing the thermometer to fall below 50°, excepting in very severe weather, for the plants being in full growth must be supplied with a fair amount of moisture at the root and in the air. A low temperature, where the atmosphere is charged with moisture, often causes the tips of the leaves to decay, which when trimmed off give the plants a shabby appearance.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE Bicton, Budleigh Salterton, Devonshire.

Gardenias.—Afford water very carefully to the earliest plants that have their flower-buds well advanced, or deformed flowers will result. Clear soot-water, if well diluted, is a good manure for these, but do not apply water unless really necessary. The atmospheric temperature should be 65° to 70°, and the plants may be sprayed lightly overhead twice daily. Gardenias will withstand a greater cold when kept fairly dry at the roots than is generally known, and if the temperature falls to 50° on very cold nights during the resting period, no harm will accrue to the plants, but when introducing them afterwards into heat and moisture it should be done gradually. If the plants must be taken into the dwelling-house when in flower, they should be grown without bottom-heat. Young plants produce the largest flowers, and when grown in 6-inch pots they are useful for decoration, having six or eight flowers open at the same time. The growth at the base of the buds should be pinched out as soon as the buds have swelled, but not before.

Lachenalias.—Now the flower-spikes can be seen, a little artificial manure, such as Thompson's or Clay's, should be sprinkled over the surface of the soil, but it must be kept out of the axils of the leaves, or the spikes may decay. These plants are most satisfactory when grown on shelves within 12 or 15 inches of the glass-roof in a cool structure, protected from frost and cold draughts.

Mignonette resents much fire-heat, and too frequent root waterings. Very weak manure-water from the cow-yard, or that prepared from deer's-dung that has been placed in a bag, and the strength withdrawn in a tub of water, suits Mignonette admirably. They should be grown in a similar position as Lachenalias. A further sowing may be made at the end of this month in a compost of fibrous loam, dry cow-manure rubbed through a quarter-inch sieve, and a little lime-rubble or old plaster broken up small. Sow the seeds in clean 5-inch pots. Be careful to provide good drainage, and make the soil very firm to within 1 inch of the top of the pot. Then sow the seed thinly, and cover it with a quarter of an inch of fine soil. Place the pots in a temperature of 50°, and when the seedlings are large enough, thin them out, leaving three only in each pot. The varieties Miles' Spiral or Machet always give satisfaction.

Gloxinias.—An early batch of these may be introduced to a temperature of 60° to 65°, and as soon as they have commenced to grow, shake the soil from the tubers, and repot them into pots of the same size, or a trifle larger than they are in at present. Light fibrous loam, half-decayed leaf-soil, and good peat, the former predominating, make a good compost, if sufficient sand be added to keep it porous. Make the soil moderately firm, place the pots in a light position, and afford no water to the root for a few days, but spray the plants overhead with the syringe once or twice daily. A pinch of seed may be sown in a 5-inch pot or shallow pan, on a level surface of fine soil which has been watered a few hours previously. Distribute the seed thinly, and put merely a pinch of sand over this; cover them with a piece of glass, or place the pot in a close case, where there is a little bottom-heat, removing it to a shelf or other light position as soon as the seeds have germinated. Shade the seedlings from the direct rays of the sun, and avoid too much moisture for the next few weeks.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Seeds which may now be Sown.—Seeds of some species of plants employed in the flower garden must be sown early in the year in heat, and grown on freely to get them in a forward state to plant out in May or June. Among these there are of the tuberous-rooted Begonias, B. semperflorens, Gaillardias, Grevillea robusta, Acacia lophantha, Wigandias, and Solanum Balbsii, the latter being a very handsome plant, not quite so well known as it deserves to be as a subtropical. The Begonias having very minute seeds, must be sown on the surface of a mixture of sandy loam, peat, and leaf-mould, in well-drained shallow seed-pans, and kept covered with a piece of tile or slate till germination has taken place. Grevillea seeds germinate freely if lightly dibbled in edgeways in the soil. A mixture of peat and loam is good for this species.

Roses may be planted in mild weather during the next few weeks, and when the soil is in a good working state. By planting Roses as early as weather permits, the wood will have time to plump up before pruning takes place in March. In order to assure success, the land for Roses should be afforded a heavy dressing of animal manure, which should be dug into it deeper than the roots of the plants. The varieties of R. rugosa being unusually showy plants, should be freely planted in the foreground of shrubberies. Deciduous trees and flowering shrubs may also be planted, the latter being grouped in their respective kinds rather than planted indiscriminately, the effect when in flower being then much finer.

Lily of the Valley.—Any beds of this plant which have been in existence for several years should be dug up, the clumps divided into one, two, and three-year-old buds, and then replanted in new beds at about 4 inches apart. The land should have been well manured, and a thick mulch of decayed manure and leaf-soil spread on the beds. The Lily of the Valley does best in a semi-shaded position, and if the beds are systematically broken and replanted, home-grown crowns are the equal of the best imported ones. The youngest bud will bloom in three years, and the next size in two. The same bud does not flower again.

Solomon's Seal (*Polygonatum multiflorum*).—A Liliaceous plant, nearly allied to the Lily of the Valley, should be similarly treated to it. There are several varieties, one having double flowers, and another with variegated foliage. The plant likes a moist situation, and in good soil it reaches a height of 3 feet. The stems, when in flower, are very ornamental, and the plant is easily forced.

Rockeries.—The present affords a convenient season to overhaul the rock-garden, and where the space covered by a rockery is small, it should not be neglected, valuable plants of small growth being apt to get smothered out of existence by others of stronger growth planted temporarily, and the latter must be much curtailed, or entirely rooted out. Without some such care, a rockery soon develops into a wilderness, affording no pleasure to the owner. Again, it may be proposed to plant some novelties which require special soil, and at this season the pockets, ledges, crevices, &c., may be prepared and labelled for these, leaving nothing but the actual planting to be done when the plants come to hand. When ordering alpines and plants generally from the nurseryman in very small pots, it is prudent to state that they are not to be sent till the proper planting season has arrived, as a change of locality has sometimes a bad effect on them if they have to remain unplanted for some long time.

Evergreens and Vermin.—Rabbits and field-mice cause much injury to some species of evergreens, notably to Hollies, by gnawing the bark near the ground-level in snowy weather. A safe and simple means of protection is to wind strips of old fishing-net round the stems for about 1 foot from the soil. I have never known this simple remedy to fail. Rabbits ought never to be allowed to exist in the pleasure-grounds, but means of access will occur, and snow-drifts afford them a means of entry occasionally.

Planting.—If not urgent, this operation is better left alone for the present, although during a mild spell the work may be pushed on, as regards Roses and many of the hardy herbaceous perennial plants, providing that they are not kept out of the soil for any length of time, and that frost is kept from the roots. In any case, neither lifting nor transplanting should be carried out on a large scale, and no plants should be moved whose roots are inactive during the winter.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

French Beans.—Sow five seeds each in 7-inch or 8-inch pots filled to half their depth with a rich loamy compost in a roughish condition, and cover them with fine soil to the depth of 1 inch, and place in a house or pit having a moist warmth of about 65°, and keep as near the glass as possible after germination has taken place. Syringe the plants twice a day. Ne Plus Ultra and Magnum Bonum are excellent forcing varieties.

Leeks.—If large specimens are needed for special dishes or for exhibition, one seed should be sown at a depth of ½ inch in the middle of the required number of drained 60's, the soil used being turfy-loam one-half, leaf-mould, one-quarter, dried horse-dung one-quarter, and as much wood-ashes and coarse sand as will afford porosity; passing the whole through a sieve with a ¼-inch mesh. Place the pots in a pit or house having a temperature of 50° to 55°, and cover with sheets of glass or brown paper; and as soon as the seedlings are well above the soil, remove the plants to a shelf near the roof, so that stocky growth may result.

Work in General.—Take advantage of frosty weather to wheel manure upon vacant land; make ready the necessary number of Pea and Bean-sticks, tying them in bundles of various lengths. Let all garden rubbish that is not readily reduced to plant food be burned or

charred, and return the ashes to the land. Prepare the various kinds of soils and manures in readiness for use, screening or sifting them when necessary. Examine stored roots; clear out and whitewash tool-sheds, and examine all tools, repairing those that are broken or replacing them with new ones. See that the Globe Artichokes, Celery, Cardoons, &c., are sufficiently protected against frost by means of bracken or litter, but removing some of this in mild weather. Store a sufficient number of Parsnips, Artichokes, and Turnips, in the root-store for use as will furnish supplies during a spell of severe frost.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

The Protection of Fig Trees.—If protection has not been applied, no time should be lost. Let the branches be taken down from the wall and tied loosely in small bundles, and wind them round with thick bands of hay or straw, and fasten the former to the wall, putting short litter on the border at the foot of the trees.

Protecting Materials.—Let all protecting materials be kept in readiness for use when hard weather seems imminent. The stakes for keeping protecting nets away from the face of the walls may be pointed, put into bundles, and secured with willow-rods or string. See that the fishing-nets and tiffany for placing over the trees, covering window openings, &c., are put into good order.

Manuring Fruit-quarters.—Every advantage should be taken of spells of severe frost to get the whole of this sort of work completed. Where the soil is heavy, a dressing of charred earth and wood-ashes greatly improves the tilth, and are of benefit to surface-rooting plants.

Strawberries.—Where the gardener is in a position of obtaining as much farmyard manure as he needs, the present season affords an opportunity to get it wheeled on to the Strawberry quarters, laying it between the rows, and spreading it later after the Dutch-hoe has been plied between the plants.

The Fruit-room.—If no frost-proof fruit-room exists, and fruit is stored in lofts, Apples and Pears should be covered with Wheat-straw or clean hay 6 inches deep, covering this with garden-mats. Examine the fruit weekly, and remove all that are showing decay; and keep the surroundings as clean and sweet as possible.

FRUITS UNDER GLASS.

By T. H. C.

Borders.—In the late houses attend to the watering of borders; if they are light and shallow they should not be allowed to become very dry, even in the winter months. In regard to borders for young Vines, it is the best practice to make them gradually, adding at a time from 1½ to 2 ft. of good compost, enclosing this by a temporary retaining brick wall, which is easily removed each time the border is added to. A good compost should consist of good fresh turfy loam, to every barrowful of which has been added an 8-inch pot of half-inch bones, the same of charcoal, and enough old mortar-rubble to keep the whole porous. When using a good loam, I prefer not to give artificial manure at this time, but would apply it to the borders when the roots are more active and ready to take advantage of its quickening powers.

Peaches and Nectarines.—Old trees that have been previously forced, and are approved early varieties, may always be depended upon to set and ripen a satisfactory crop of fruits, provided the previous year's treatment has been proper. Young trees do not force so readily, and are more liable to grow strongly, at the expense of short-jointed fruitful wood. Trees started in November will have their flowers set and the young growths partially disbudded. Disbudding at this season should be carried out first at the bottom of the trees, owing to the influence of the heat in the pipes, starting the branches nearest them into growth. Under more natural conditions the trees break evenly, and then disbudding should be commenced towards the top, and carried out gradually. First of all, remove all foreright and badly placed shoots, and treat the bottom half of the tree similarly in a few days time, more or less according to its growing condition. Syringing having been discontinued during the setting period, should be resumed immediately setting is effected; it should be done twice daily if the weather be fine and bright, but if dull and cold syringe in the forenoon only with warm water, but otherwise maintain a moist condition of the atmosphere. Afford air by the top ventilators upon every favourable opportunity towards the middle of the day, but guard at all times against cold, chilling draughts. Keep a sharp look-out for aphides, and upon the least sign of their existence vaporise with XL-All, or syringe with diluted Quassia extract. Adopt preventative measures, and much time, expense, and after labour will be saved. The old adage "A stitch in time saves nine," is never more applicable than when dealing with insect pests. At the evening damping down, sprinkle on the paths a little of the drainings from the cowsheds and stables, the fumes of which are invigorating to the foliage, and help to keep down red-spider. A night temperature of 58° to 60° should be maintained, except in severe weather. It is better to let it fall below these figures than to heat the pipes unduly. A day temperature of 5° to 10° higher, according to the weather should be ensured. Second house: Trees started in December will now be in flower. Maintain a slightly drier atmosphere, especially towards the middle of the day, when the flowers should be fertilised. Endeavour to have a circulation of fresh air daily, and ventilate as advised for the earliest house. A night temperature of 50° to 55°, rather less than more, and 60° to 65° by day, should be ensured. Hasten the pruning and cleaning of

FIG. 27.—BEARING SHOOT OF PEACH AS PRUNED.

succession-houses and trees, as with the lengthening days the flower-buds begin to expand, when care is needed not to injure them when cleaning and tying up. Old-established trees making short-jointed shoots thickly studded with buds, flower-buds predominating, require little else in the way of pruning than to cut out the old fruiting wood and thin out the shoots left, so that they are thinly disposed over the tree. When tying the trees to the trellis again, bear in mind that a little later on, next year's fruiting shoots will also need tying-in, and hence sufficient space for their proper development should be left. Young trees, on the other hand, require slightly different pruning, and care and forethought are needed, no matter upon which system they are to be trained in the foundation branches of the future tree. Shortening of the shoots is necessary, in order to secure an even distribution of the branches, always shortening to a wood-bud, which is easily distinguishable from a flower-bud by its sharp conical shape; and which, if possible, should point in the direction you wish the future branch to extend. Autumn is the best time to plant, but if planting is still contemplated lose no time in carrying it out.

Melons.—Plants raised from seed sown at the beginning of the month are best fruited in large pots plunged in a hot-bed. Pot on the plants into 5-inch pots, using a compost of two-thirds good turfy loam, and a third leaf-mould, to which may be added a slight sprinkling of Veltha (powder). Plunge the pots in a brisk bottom-heat, and after root action becomes vigorous, gradually withdraw the pots, and return to a shelf close to the glass in a temperature of 70°. Place a stake to each, and tie in as growth proceeds. Sow seed for succession towards the end of the month.

Cucumbers.—The early Cucumber-house should now be got in readiness for early plants. Thoroughly cleanse the glass, wood-work, and walls; clear out every particle of the old soil, and hot lime-wash the walls that enclose the border or bed. At this season bottom-heat is essential, and if the beds are not provided with hot-water pipes, a hot-bed of half stable-manure and half Oak-leaves 2½ feet deep should be provided; and on top of this, or on the grating, below which are the hot-water pipes, place turves of loam, and at intervals of 4 feet raise little hillocks of soil, consisting of half good loam, one-quarter leaf-mould, and one-quarter old Mushroom-bed. Before planting, allow the soil to become of the same temperature as the house.

THE APIARY.

By EXPERT.

Wax Extracting.—Many shillings can be saved every year by the bee-keeper if he collects all loose pieces of comb and pieces of foundation, and at the end of the season makes them up into cakes for sale in a manner most suitable for his customers. Some like it in the form of cakes, such as a small pie-dish or saucer will hold, or for tailoring purposes in small pieces about the size of an egg. By doing this, not only are these odd pieces turned to account, but the bees are kept from robbing, which often occurs through small pieces of comb being left about containing honey, and to a great extent the wax-moth is prevented from breeding. When there are many hives, it pays to purchase a wax-extracter, which does the work well and with very little trouble. The method is very simple: the bottom part of the extractor is filled about three parts full of water, and placed on the fire; the top part is then filled with wax, and the steam from the hot water will gradually melt the wax, and as this proceeds keep filling up the top with old combs, &c., until you think you have sufficient quantity to make several good cakes. When this is nearly all melted down, gently tilt the upper part forward, and pour out into a basin of cold water, when it will quickly set. As soon as this is done, place the wax again into the extractor with clean water in the boiler part, and boil up again. This time the wax will generally turn out fit for market, but if it is not very good, boil up a third time, and then run out into saucers, or pans, or egg-cups, to suit your customers. The extractor should be cleaned when hot, as the wax will come off much easier and cleaner than if it is left for another time. When only a few stocks are kept, and it is not convenient to have an extractor, place the wax in a meat jar and put in the oven; when melted, run out into a pan, and as soon as this is set, place again in the oven until you have it clear—this is rather a tedious way, and the former is much preferable.

General Hints.—See to leaky roofs, and when possible place on a cake of candy, which can be easily made from the receipt given below. Examine the outer covers of straw skeps to see if mice are getting into them, but do not in any case disturb the bees more than can be avoided.

Receipt for Candy Cake.—Place a clean pan on the fire, and put into it half a pint of water and 3 lb. of crystallized cane sugar; begin stirring at once till the sugar is dissolved, to prevent it from burning. Let it boil for a few seconds, then cease stirring, and let a few drops fall on a plate; if this sets at once so that it does not stick to the finger when pressed, it will do; but if sticky, it contains too much water, and boiling must be continued to drive off the excess of liquid. When the right condition is reached, take it from the fire and set the pan in cold water, stirring briskly all the time until it begins to turn white or granulate, and becomes rather stiff, when it may be poured into any mould suitable, and lined with paper for easy removal and to prevent sticking to quilts. The candy so made will, when cold, be of such consistency as to become quite soft and buttery" when scraped with the finger-nail.

SECTIONAL BOILER.—We are informed by Mr. J. G. WILSON, the gardener at Chevet Park, Wakefield, that Mr. SQUIBBS, the gardener at Eshton Hall, will allow any gardener interested in this form of boiler for garden purposes, to view one that is in use in the gardens at that place.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JAN. 27—Roy. Hort. Soc. Coms. meet.

SALES FOR THE WEEK.

MONDAY and FRIDAY, JANUARY 26 and 30—
Herbaceous Plants, Perennials, Azaleas, Plants, &c., at 67 and 68, Cheapside, by Protheroe & Morris, at 12.

MONDAY, JANUARY 26—
Clearance Sale of Fruit Trees at Cliffe, near Rochester, by order of Messrs. W. Horne & Sons, by Protheroe & Morris, at 11.30.

TUESDAY, WEDNESDAY, and THURSDAY, JANUARY 27, 28, and 29—
Unreserved Sale of Nursery Stock, at The Nurseries, South Woodford, by order of Mr. John Fraser, by Protheroe & Morris, at 11.

TUESDAY, JANUARY 27—
Roses, Liliums, Azaleas, Border Plants, Palms, Bay Trees, 50 000 Lily of the Valley, &c., by Pollexfen & Co., at their Rooms, Pilgrim Street, E.C.

WEDNESDAY, JANUARY 28—
Azaleas, Rhododendrons, Roses, Perennials, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Japanese Lilies, Gladioli, Tuberous Begonias, Gloxinias, Hardy Flowering Perennials, Roses, Standard and Dwarf, &c., by Mr. Stevens, at his Rooms, 38, King Street, Covent Garden, W.C.

FRIDAY, JANUARY 30—
Imported and Established Orchids, at 67 and 68, Cheapside, by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —38·7.

ACTUAL TEMPERATURES:—
LONDON.—*January* 21 (6 P.M.): Max. 45°; Min. 38°.
January 22 (NOON): Overcast; 46°.
PROVINCES.—*January* 21 (6 P.M.): Max. 46°, Holyhead; Min. 42°, Norwich. Dull or rainy in most places.

Forestry.

THE report of the Committee appointed to consider the present condition and future prospects of forestry in Great Britain has been issued as a Parliamentary paper. The Committee was presided over by Mr. MUNRO FERGUSON, M.P., and included, in addition to sundry gentlemen of official position, such experts as Dr. SCHLICH, Col. BAILEY, Prof. J. R. CAMPBELL, and Dr. SOMERVILLE. The witnesses comprised landowners, agents, foresters, and scientific men.

The Committee endorse the conclusions of the Select Committee of 1885-87 as regards the neglected condition of forestry in Great Britain, the possibility of improvement, and the necessity for the provision of better means of education. As regards the question of the extension of the forest area, the Committee point out, as cited in the *Times*, that there is on the highest authority in these islands an area of waste, heather, and rough pasture, or land out of cultivation, amounting to 21,000,000 acres, on a large proportion of which afforestation could be profitably undertaken. The area of waste land which might be afforested becomes a matter of grave national concern when it is remembered that, according to experts, the world is rapidly approaching a diminution of, if not actual dearth in, its supply of coniferous timber, which constitutes between 80 and 90 per cent. of the total British timber exports. The committee believe that the question of planting suitable waste lands under the control of the Crown, or over which the Crown exercises manorial rights, is worth the attention of the Commissioners of Woods and Forests.

Dealing with the question of education, the Committee state that, even where access may be had, for purposes of instruction, to private woods, it is exceedingly desirable that collegiate instruction in forestry should be illustrated by means of example plots, a total area of 100 to 200 acres at each educational centre being necessary and sufficient for this purpose.

They place on record the growing feeling that no scheme for the general improvement of present conditions can be satisfactory which does not provide for the establishment of two large State forests to demonstrate the most perfect technical and economic developments of the art of forestry, and to be managed as commercial undertakings, so as to produce the best financial results.

The final recommendations of the Committee are as follows:—

(*a*) That two areas for practical demonstration be acquired, the one in England and the other in Scotland, of not less than 2,000 acres, nor over 10,000 acres in each case. They suggest that the Alice Holt Woods in Hampshire be made available as soon as possible to serve as a demonstration area in England; and that a suitable estate be purchased in Scotland, as convenient as possible to Edinburgh, for the same purpose.

(*b*) That additional facilities for instruction be afforded, by the appointment of a lecturer on forestry in connection with each of the Universities of Cambridge and Oxford, and that example plots be provided in connection with each of these centres and with Edinburgh.

(*c*) That a good grounding in forestry form an integral part of the curriculum of the colleges providing instruction in agriculture in Great Britain; and that short courses of instruction suitable for the requirements of young foresters be also provided there. Instructors should also be available for giving practical advice in connection with the management of woods, the owners of which desire an expert's opinion.

(*d*) That provision be made for the education of foresters and woodmen by employing students to work in both the demonstration forests; and that suitable buildings be erected on the ground for the instruction and, where necessary, for the accommodation of these student-foresters.

(*e*) That lectures be given, under the auspices of the county councils, in neighbourhoods where there is a considerable area under wood; and that scholarships be offered in such counties to enable working foresters to attend courses of lectures.

(*f*) That the inequality shown to exist in the levy of the estate duty on timber be redressed.

(*g*) That the Government be urged to secure the early enactment of a Bill to protect owners of woods against loss by fire caused by sparks from locomotives.

(*h*) That the inquiry conducted in 1895, concerning the area of woodlands, be repeated by the Board of Agriculture, and that details concerning the character of the timber crop grown upon them be ascertained.

(*i*) That the attention of corporations and municipalities be drawn to the desirability of planting with trees the catchment areas of their water supply.

BOWOOD (Supplementary Illustration).—Since Lord LANSDOWNE returned from Canada and India, where he has acted as Viceroy, extensive alterations have been made at Bowood in the gardens and pleasure grounds, to which we shall have occasion to refer in a future number. Our supplementary illustration shows a portion of the terrace gardens, which are laid out in the Italian style, and the wide walks, broad stairways, marble fountains, and other architectural features, add greatly to the effect. The view from the upper terrace, with the lake in the foreground, the park, and the woods, with the downs in the distance, forms a delightful bit of landscape.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society will be held on Tuesday next, January 27, in the Drill Hall, Buckingham Gate, Westminster. A lecture on "The Cultivation of the Blue Nymphæa" will be given by Mr. JAMES HUDSON, V.M.H., at 3 o'clock. At a general meeting held on Tuesday, January 13, ninety new Fellows were elected, amongst them being the Countess of DUDLEY, Lady CLAYTON EAST, Lady BROOKE, Lieut.-Col. H. W. APPERLEY, and the Hon. Mrs. BOURKE.

FLOWERS IN SEASON.—Messrs. W. BULL & SONS, of King's Road, Chelsea, brought to our notice on the 19th inst., some blooms of choice varieties of Primula sinensis. Among the single, flowered varieties we noticed Sunshine, crimson-shaded with carmine; Mont Blanc, pure white; Pink Beauty, fulgens almost scarlet; Imperial Blue, alba oculata-lutea; and Comet, of brilliant crimson colour. The old fimbriata alba and rubra were very fine. Of double-flowered varieties there were alba, rubra, fulgens, and Blushing Beauty. All the varieties are good types of this popular decorative plant.

"WILLING'S PRESS GUIDE."—The well known scarlet and black cover of *Willing's Press Guide and Advertisers' Directory and Handbook* now encloses the thirtieth annual volume. It has been duly brought up-to-date, and contains alphabetical lists of newspapers and periodicals; catalogues of provincial publications, and a mention of colonial, American, and continental newspapers. With this wealth of titles, addresses and other epitomised information, the Guide is invaluable to everyone connected with the press.

THE SURVEYORS' INSTITUTION.—The next Ordinary General Meeting will be held in the Lecture Hall of the Institution on Monday, January 26, 1903, when a discussion will take place on Mr. H. T. SCOBLE'S paper, entitled "Rural Drainage and Sewage Disposal." The attention of members is specially called to the fact that the rooms of the Institution are open daily, and are available for reference to the library, for arbitrations, writing, appointments, or other business purposes.

GARDENERS AT FOOTBALL.—H. B. MAY'S (Edmonton), and T. ROCHFORD'S (Turnford).—The return match between elevens representing the *employés* of the above well-known firms took place on January 17 on Mr. H. B. MAY'S ground at Angel Road, Edmonton, the victory resting with the home team by four goals to two goals. The previous match was played at Turnford in October last, and resulted in a drawn game, each side scoring four goals.

RATING NURSERY LAND.—We have received from the Horticultural Trades' Association of Great Britain and Ireland, whose hon. sec. and treasurer is Mr. CHAS. E. PEARSON, of Lowdham, Notts, the following communication: "In your reply to 'Enquirer' (p. 48 last issue), you take it for granted that the decision given by the Law Lords in connection with the Agricultural Rates Act of 1896 (and applying to that alone), upsets the previous decision by the same authority in

Purser *v.* The Worthing Local Board. If this were the case, this Act intended for the relief of agriculture would do an immense injury and injustice to the horticultural industry by converting glasshouses from 'trade fixtures' into 'buildings,' and rendering them liable to be rated as such, instead of being taken into account as raising the letting value of the land upon which they stand, which I believe is the present state of the law. The two decisions referred to certainly differ in principle, but were given on entirely different issues, and although certain isolated authorities have tried to take advantage of the latter one to increase the assessments on glass used for commercial horticulture, the matter is being contested, and will, if necessary, be again fought out to a finish, as such a change on the top of the low prices now prevailing would probably involve the closing of a very large number of glass establishments in highly-rated districts."

ENTERTAINMENT TO THE EMPLOYÉS OF THE ROYAL AQUARIUM. — On the evening of the 14th inst., Mr. R. BALLANTINE, one of the Vice-Presidents of the National Chrysanthemum Society, and Mr. R. DEAN, General Secretary, assisted by some members of the Society, entertained at supper at Fumagalli's Restaurant, Wilton Road, Victoria Station, about thirty of the *employés* at the Royal Aquarium, by way of acknowledging the great assistance and courtesy received from them on the occasion of the exhibitions of the National Chrysanthemum Society, Some of them had been engaged within the building during the twenty-seven years the Chrysanthemum shows had been held there. In the unavoidable absence of Mr. BALLANTINE, in Yorkshire, who sent a warmly sympathetic letter, the Chair was taken by Mr. R. DEAN, supported by Mr. J. W. WILKINSON, the Secretary of the Royal Aquarium; Mr. H. J. JONES, who, assisted by friends, provided an excellent musical entertainment; Mr. G. PRICKETT, who sent a number of Chrysanthemum blooms for the decoration of the tables; Mr. J. MCKERCHAR, Mr. E. F. HAWES, of the Royal Botanic Society, and others. After a substantial meal, there were kindly speeches and song, and at the close "Auld Lang Syne" was sung with much feeling. The cost of the entertainment was defrayed by private subscription.

"ALL ABOUT SWEET PEAS."—In our note last week upon this interesting little pamphlet by Mr. ROBERT SYDENHAM, we stated on p. 42 that ten varieties there enumerated were recommended as the best ten for cultivation. This was a clerical error, those varieties being the best ten remaining for cultivators of more than forty varieties. The actual best dozen varieties as voted by twenty-seven cultivators are Black Knight (23 votes), Blanche Burpee (21 votes), Coccinea (18 votes), Countess of Lathom (16 votes), Duke of Westminster (23 votes), Hon. Mrs. Kenyon (27 votes), Lady Grisel Hamilton (27 votes), Miss Willmott (22 votes), Navy Blue (20 votes), Prince of Wales (21 votes), Prima Donna (22 votes), and Salopian (26 votes).

PRESENTATION.—The staff at Longford Castle gardens, on Saturday, January 17, presented Mr. HAZELTON with a handsome marble clock, bearing a suitable inscription. Mr. HAZELTON severs his connection with Longford at the end of this month, and will carry with him the well-wishes of all those with whom he has been associated.

THE LATE MR. WILSON'S GARDEN AT WISLEY, which has been advertised for sale by auction on Tuesday last at the Mart, Tokenhouse Yard, London, by Messrs. ALEX. H. TURNER & CO., was not sold on that day.

NEW WORK ON VINES AND GRAPE-GROWING. —We understand that Messrs. VIALA & VERMOREL have undertaken the publication of *Ampélographie*, a new work on Grape-growing, that is to be issued also from 5, Rue Gay Lussac, Paris, and Villefranche-sur-Saone, Rhone. The work will appear in the form of six volumes of from 400 to 500 pages each, with 500 coloured, and between 1000 and 1500 black-and-while illustrations. No pains have been spared in the preparation of the *Ampélographie*, for which the collaboration of the best-known authorities on the subject has been secured. The information given is comprised under the following headings: —1, Synonymy; 2, Bibliography; 3, History and Origin; 4, Geographical Distribution; 5, Comparative Ampélographie; 6, Cultivation; 7, Wine-making. In fact, the author's aim is to publish a detailed study of the Vine, its life-history, and its products. The work promises to be of unusual importance, and although too costly for the majority of gardeners, it will be a most valuable book of reference in garden-libraries.

PRIZES OFFERED BY THE ACADEMY OF SCIENCES.—The Institute of France has published in the *Comptes Rendus* for December 22, 1902, the list of prizes to be awarded for scientific research during the years 1903 to 1906. In the botanical section the list is as follows :—

Grand Prix des Sciences Physiques.—For research and demonstration of the various methods of formation and development in Ascomycetes and Basidiomycetes.

Prix Bordin.—For demonstration, after study of many types and varieties the principles of the phenomena of double fecundation or digamy, that is to say, simultaneous formation of an egg and of a "trephime" in Angiosperms.

Prix Desmazières (1,600 francs).—For a paper, by French or foreign author, published during the preceding year, treating of some or of all Cryptogams.

Prix Montagne (1,500 francs).—To be awarded entire, or in two portions of 1,000 and of 500 francs respectively, to the author or authors of important works dealing with the anatomy, physiology, development or description of the lower Cryptogams (Thallophytes and Muscine). Open to native and naturalised Frenchmen only.

Prix Thore.—For the best work on the cellular Cryptogams of Europe.

Prix de la Fons-Mélicocq.—Awarded every three years for the best manuscript or publication which shall be a botanical treatise dealing with the north of France; that is, with the Departments of Nord, Pas-de-Calais, Ardennes, Somme, Oise, and Aisne. This prize will be awarded in 1904.

FORCING BY MEANS OF ETHER.—A correspondent of the *Times* in alluding to the method of etherisation, frequently adverted to of late in these columns, says "that horticulture is essentially a progressive industry, but in England its general motto would seem to be the Aldine one of *festina lente.*" Our cultivators are, indeed, not very ready to adapt new methods or to avail themselves of new resources. They prefer to wait to see what others do. It is from this ultra-conservatism, for instance, that the use of the electric light for cultural purposes has made little or no progress in spite of the really astonishing results of the experiments made by the late Sir WILLIAM SIEMENS, and which were recorded at the time in these columns. We are pleased, however, to learn from the *Times* correspondent that "So far as England is concerned, at least one grower has tested on an extensive scale the value of the etherisation of plants. Mr. T. JANNOCH, of Dersingham, near Sandringham, immediately on hearing of the discovery, had a special ether chamber or tank made, and the results of his experiments, which I have been permitted to examine carefully, are far beyond any reasonable anticipations. Next season Mr. JANNOCH, doubtless in common with all other cultivators who have tested the system, has determined to enter into yet more extensive experiments. The developments in this and other countries will be watched with much interest by a very wide community of flower growers and the public generally.

THE ARTS AND CRAFTS EXHIBITION.—The seventh exhibition of the Arts and Crafts Exhibition Society is now open at the New Gallery, Regent Street, and includes, as usual, pictures, drawings, designs, and specimens of various ornamental crafts. Mr. WALTER CRANE contributes several designs for wall-papers, carpets, &c.; Mr. LEWIS F. DAY, Mr. C. F. A. VOYSEY, and other well-known artists and craftsmen are also well represented. Many of the exhibits come from technical schools; there are specimens of bookbinding from the Kelmscott, the Chiswick, and other presses; and much fine embroidery, furniture, metal-work, glass, enamelled and jewelled ornaments from schools and guilds, as well as from private individuals. The Society aims at improving the artistic standard of ornamental handicrafts, and their present exhibition is satisfactory as regards both the number and the merit of the contributions included in it.

EFFECT OF ENVIRONMENT UPON PLANTS.—M. GASTON BONNIER has recently laid before the Académie des Sciences a report upon some interesting experiments undertaken by him to determine the influence of environment in modifying certain characteristics in plants. He divided the plants of species native to the district of Paris into halves, and cultivated one portion of them at Fontainebleau, and the remaining half in the same soil taken to Toulon. While the former set developed normally, those portions of the same plant cultivated on the shores of the Mediterranean gradually exhibited much modification under the influence of their new surroundings. At the end of three years the resisting powers of their wood, and the thickness of their leaves had increased, so that they to a certain extent resembled species of the same kind of southern origin. The fixing of certain characteristics of adaptation might induce one to consider them of specific value. This consideration is thus connected with the problem of the origin of species, and on this account it is of value to record the results of these experiments of M. GASTON BONNIER.

THE CHINESE FLORA.—Lately we had occasion to express our satisfaction that quicker progress was at last being made with the publication in the *Journal of the Linnean Society* of the enumeration of the plants of the Chinese Empire. Our satisfaction is enhanced by the issue dated January 1, of another part consisting mainly of the Orchid, elaborated by Mr. ROLFE. The delay in publication has been so long, that a supplementary part or parts containing the additions that have been made while the work has been in progress, will be absolutely essential. In the meantime, it is no slight boon to have as much as we have.

THEFT OF ORCHIDS. — We learn that the Deputy Magistrate of Sealdah has, after a protracted hearing, sentenced two native nurserymen to two months' imprisonment, and a fine of Rs. 200 each, and in default of payment of fine, two weeks' additional imprisonment. These two men were charged with receiving stolen Orchids with a guilty knowledge. The Orchids were stolen from a local Bengali nurseryman, some of which were recovered by the police from the garden of a well-known amateur gardener of Calcutta. *Indian Gardening.*

THE RAINFALL.—Messrs. SOWERBY WALLIS and H. R. MILL have published in *The Times* a most interesting series of tables dealing with the rainfall at fifty-two stations in the British Isles

during 1902. At only four stations was the amount above average; in all the rest it was below, and in some cases much below the average of thirty years. For the last eighteen years there has been an average deficiency of 7 per cent., so that the repeated and continuous defect is assuming serious proportions.

LAW NOTES.

PEER AND NURSERYMAN.

APPLICATION FOR A BANKRUPT'S DISCHARGE.—At Northampton, Lord Lyvedon, described in the bankruptcy petition as Courtenay Robert Percy Vernon, nurseryman, of Stanwick, Northampton, applied for his unconditional discharge. His lordship was adjudicated bankrupt in 1894 with unsecured debts amounting to £4,400. A dividend of 4*s.* 4*d.* was paid. In January, 1900, his discharge was granted by His Honour Judge Snagge on condition that he consented to judgment for an amount making the dividend equal to 10*s.* At this time he was earning a living as ship's purser. The following month, on the death of his uncle, he succeeded to the title. It was afterwards discovered that a large quantity of silver plate, supposed to be entailed, became his absolute property. It was sold by the Official Receiver, and realised sufficient to pay a supplementary dividend of over 10*s.* Fresh proofs amounting to £4,700 were, however, put in. His Honour was now informed that a dividend of 9*s.* 3¾*d.* had been distributed on the whole indebtedness. The money would have paid 10*s.* had not expenses been incurred in a law suit. His Honour granted the discharge.

Obituary.

HERMANN WENDLAND, whose death on the 12th inst. after a long illness, we greatly regret to have to announce, was one among the many Germans who have "graduated" in horticulture at Kew, and who was the distinguished Director of the famous Royal Gardens at Herrenhausen, Hanover, stands out conspicuously as one who has accomplished much in the fields of both botany and horticulture. We take the following particulars from the *Journal of the Kew Guild*, 1900.

"He was born in October, 1823, in Herrenhausen, where his father and grandfather preceded him as Director of the Gardens, and where he received his early training. He left his father to study under Professor Bartling in the Botanic Gardens at Göttingen and Dr. Schott at Schönbrunn, proceeding thence to Kew. Here he was employed nearly two years as a gardener, leaving in 1849 to return to Herrenhausen, where he worked as assistant until his father's death which occurred in 1870, when the son was appointed Director. In 1857 he was sent on a botanical expedition into Guatemala and Central America, where he collected many new and interesting plants, and introduced many by means of seeds, &c., afterwards distributing them from Herrenhausen. One of his best known discoveries was Anthurium Scherzerianum, which he found in Costa Rica, and which flowered at Kew in 1862, when a figure of it was published in the *Botanical Magazine*, t. 5319, where it is described as "a very singular little plant."

Herr Wendland prepared and published in 1854 a list of the Palms cultivated in European collections. This was followed by researches amongst the plants of this difficult Order with so much zeal and activity that he soon became the recognised first authority upon Palms. Sir Joseph Hooker acknowledges his indebtedness to Herr Wendland's monographs, &c., in the preparation of the *Genera Plantarum*. He has also made a specialty of the cultivation of Palms, the collection at Herrenhausen rivalling that at Kew. There has always been a ready interchange of living examples between the two establishments.

Orchids have also been objects of special attention with Herr Wendland; the collection he has formed and cultivated with exceptional success for many years being described by his bosom friend, the late Prof. Reichenbach, as by far the richest in botanical species that had ever been formed. Until within the last few years, Herr Wendland visited Kew annually, spending several days amongst the cultivated Palms, Orchids, &c., and endearing himself to the officials by his urbanity. His knowledge of tropical plants and their cultural requirements

THE LATE HERMANN WENDLAND.

is exceptional, and his readiness to impart this knowledge to others made his visits profitable as well as enjoyable.

In 1891 Herr Wendland celebrated his fiftieth year of professional work. He was present at the Ghent Quinquennial in 1898, and officiated as a judge."

If we remember rightly, he exhibited there as a novelty the now popular Saintpaulia ionantha.

SEED TRADE.

THE FLOWER-SEED CROPS OF THE PAST YEAR.

THE county of Essex is the great centre of flower-seed production in this country, and many acres are devoted to the culture of annuals, biennials, and perennials for the production of seeds. This branch of the great seed industry has been affected by the weather of the past summer; there is a serious shortage of crop in some cases, and a partial deficiency in most.

ANNUALS.

Generally speaking, there is an average crop of some which are grown in Essex, but there is an advance in price, mainly caused by the extra expense incurred in cleaning and dressing the seeds, owing to the waste which follows imperfect maturation. Labour has also become dearer, and so slight advances in price may occur in the cases of all the common annuals.

Asters.—This is one of the most important of our popular annuals, and Germany has to be largely drawn upon for a supply of seed. There is in Germany soil highly favourable to the culture of the Aster, and especially about Erfurt and Quedlinburg, more particularly at the latter place, where they do well in the free loam which abounds. It is reported that there are about two-thirds of an average crop of seed of the early varieties, and of these the now popular Comet strain are leading favourites. The Comets, of which there are now several varieties, follow a type of Aster known as The Queen of the Market, a strain which includes several varieties, the flowers having large yellow centres. Of the late-flowering types, represented by the Victoria, Truffaut's Pæony-flowered, &c., there is about one-third of an average crop. The single Aster seeds come mainly from France, and for these there is both an extensive and growing demand. As owing to the dearth of sunshine, seeds of Asters were imperfectly matured, and as the germination of many will doubtless be weakly, it is recommended that sowing be deferred later than usual in the coming spring, until warm growing weather appears probable. The most popular of the double Asters is the Victoria type; for pot culture the dwarf Chrysanthemum-flowered, the Victoria, and Truffaut's Pæony-flowered are preferred, but all do well in good soil in the open ground.

Stocks.—The early flowering Stocks, such as the Wallflower-leaved varieties, have done well on the whole, but of the large late-flowering strains the crop of seed is said to be very small; much of the seed saved from plants in the open ground will, it is believed, show imperfect germination.

Wallflowers.—Though seeds of these are by no means plentiful, they have produced better than some of their relatives, the Stocks; it is possible some of the choicer varieties may become scarce as the season progresses.

Sweet Peas and Mignonette. — These two are bracketed together because there are no two other annuals in greater demand. The home crops of both are only moderate, still there is no likelihood of scarcity. Seeds of Sweet Peas especially, now come in from many parts of the world, and the Californian crops are exceptionally good. It is not too startling a statement to make, to say that California grows more Sweet Peas than all Europe put together. Of Mignonette, much of the home supply comes from the continent. The two most popular varieties are the Machet and the Crimson Giant, with their sub-varieties, making a group of about twenty. It may be assumed there are about half a dozen distinct types of Mignonette. The Machet is perhaps the best for pot-culture and market work, and the Crimson Giant for the garden—but of the newer introductions, it has been said none can equal the old form for perfume; the Golden Queen is considered the most fragrant.

Pansies.—The commoner varieties have given plentiful crops of seed. The Pansy likes spells of wet weather, and yet for the same reason the fine selected large flowered types have produced no seed at all. It is doubtful if ever before there has been in any one season so poor a crop of seed.

Tender Annuals.—Such subjects as Verbena, Phlox Drummondi, Zinnia elegans, and Marigolds, so extensively grown in Germany, were all in full vigour up to the early days of October, then came frost, and the Marigolds in particular went down before it. Seed of the fine selected striped varieties is very scarce, as the plants had matured but very little seed when the frost came, owing to the retarding character of the summer; and all the best of other types are a very short

crop. A late summer and the early frosts combined to seriously limit the supply.

Nasturtiums.—Next to Sweet Peas, the Nasturtiums have made the greatest advance as a popular flower, and their popularity is still on the increase. It is said that in America the Nasturtium is actually supplanting the Sweet Pea in popular favour. Taking the whole of the seed-growing districts of Europe, the tall Nasturtiums show a fair average crop. The varieties of the improved Tom Thumb section, as distinct from the common yellow and scarlet varieties, are a very short crop, more especially on the Continent. In this country, the yield appears to have been generally better.

Biennials and Perennials.

These generally are an average crop taking them as a whole, and as they produce seeds generally earlier than the annuals, they had rather the best of the most favourable weather of the summer. Sweet Williams seeded indifferently in places; a fungoid growth which attacks the foliage in autumn and winter, destroyed many plants in some places. The absence of sun affected the crop of Canterbury Bells in some districts, but generally they and the stately Foxgloves seeded well. Pentstemons, always late in maturing their seeds, even in the case of one-year-old plants, had barely time to ripen their pods before the frost came; but the crop is not abundant. Biennial stocks formed promising seed-pods, but ripened them quite late, and some had to be gathered in a half-green state. *Pisum.*

BRYOPHYLLUM CRENATUM.

Most botanical students are familiar with the leaves of the common Bryophyllum calycinum. When pegged down on the surface of moist soil, the leaves produce, from the notches in their margins, little shoots capable of reproducing the plant. Morphologists, at any rate, those of the old school, will remember the pretty inferences which were drawn from these facts. Others not interested in such matters nevertheless acknowledged the attractiveness of the plant, and will feel interested in the illustration (fig. 29) which we now give of a species newly introduced into gardens from Madagascar, by Messrs. Veitch. Detailed description is unnecessary, as Mr. Worthington Smith's drawing from a plant exhibited before the Royal Horticultural Society gives a sufficiently good idea of the plant. The leaves were of a greyish-green colour, the calyces purple, and the petals pale yellow. The plant was botanically described by Mr. Baker in the *Journal of the Linnean Society*, xx. (1884, p. 139).

HOME CORRESPONDENCE.

BEGONIA GLOIRE DE LORRAINE.—With reference to the culture of this beautiful winter-flowering plant, I quite agree with Mr. Fleming (*Gardeners' Chronicle*, Jan. 10, p. 29), and cannot understand anyone who has succeeded in growing the plant to recommend "stopping;" but it is not on that point that I would draw attention. Mr. Fleming's success is undoubtedly due to taking cuttings at the proper time. So many growers are too impatient, and take cuttings which are not suitable. With regard to the cuttings, my experience differs a little from that of Mr. Fleming. I find that the best cuttings are obtained from the base of old plants which have been allowed to continue flowering, and have not had the tops taken off. The flower-stems may be taken off, and the plants kept as clean and healthy as possible; they will then start naturally from the base in April or perhaps earlier, and the short shoots should be taken before they begin to show flower. Almost any little shoot will root, and those taken above the point where they have begun to flower may, if stopped, form a bud at the base; but it takes a long time, and it is far better to avoid such cuttings. It is probable that it is such cuttings that "H. W. W." refers to, for it would be impossible to get the short-jointed cuttings from the base of the plants at the time he recommends propagating. I have propagated and grown large quantities of this Begonia, and find, as Mr. Fleming states, the secret, if any, is in starting with good cuttings, and keeping them growing freely from the start to the finish. Light and air are essential, but cold draughts must be avoided, and also a very low temperature; but many are inclined to give too much heat. Last season I found those more fully exposed to sun and air were more satisfactory than those under shade and more warmth. The Turnford Hall variety has proved equally free, as was seen by the plants exhibited by Mr. Fleming and others. Mrs. Leopold de Rothschild is also good, but I rather prefer the old variety as the colour is better. *A. Hemsley.* P.S.—I should have added that I have propagated from leaves, but have found them give more trouble than the stem cuttings, and grown side by side the stem cuttings have made equally good plants. In the spring of 1901, I propagated about 3,000; but last season we did not strike so many, but we had a good batch of Turnford Hall. *A. H.*

—— It may interest some of the readers of the *Gard. Chron.* to know that in these gardens there is growing a very fine seedling plant of Begonia Gloire de Lorraine, which has not as yet lost a leaf. The flowers are circular in form, a little larger than those of the parent plant, and paler in colour. It is growing in a 5-inch flower-pot. We grow about two dozen plants, and have had them in flower since the last week in August; and at the time of writing they are in very fine condition. *Chas. Wakefield, gr., The Cottage, Elmfield. Westbury-on-Trym.*

Fig. 29.—Bryophyllum crenatum: calyx purple; petals pale yellow.

HORTICULTURAL HALL.—I presume that those who are busy criticising the plans for the new Hall are among those who have earned the right to do so by the liberality of their contributions. If, as is extremely unlikely, they spoil the scheme, we shall know whom to blame for disloyalty to the cause. I hardly think the critics realise the responsibility they are incurring, or they would for once make an united effort to obtain what we all want. *An Old Kewite.*

SWEET PEAS.—Probably many growers will soon be sowing seed out-doors. It is a risky proceeding, as apart from the coldness of the soil checking germination, there is yet time for much

hard weather, whilst further, birds and ground vermin may do the too early plants much harm. It is very doubtful whether a sowing made early in March does not give better results than those made now will do. The best way to secure early plants is to sow about nine seeds in 5-inch pots that have been filled with good soil, standing them in a cold frame or house, where if germination be slow, it is certain, and by the time the plants are 4 inches in height, they can be turned out of pots and planted out to form separate clumps, the best of all ways to grow Sweet Peas. *D.*

A FINE IRISH YEW TREE.—In the gardens of Seaforde House, co. Down, there may be seen in robust health, a magnificent specimen of the so-called Irish Yew, Taxus hybernica, or Florence Court upright growing Yew. The measurements which I have taken are rather under than over the mark, and are as follows: height, 35 feet 6 in.; circumference taken 18 feet from the ground, 73 feet. Should any reader of this note know of a superior specimen of the above, would he kindly afford the editor its dimensions and where growing, as I believe the Seaforde tree is one of the finest specimens in the country. *A. F. Grubb, gr., Seaforde House.*

THE LATE JOHN McKENZIE.—Some of Mr McKenzie's many friends may be interested in the following details of his life. Born at Knockbain, Beauly, in Inverness-shire, he served his apprenticeship under Mr. W. Westwood, at Belladrum gardens, N.B., the seat of the late James Merry. He was next a journeyman at Drumlanrig Castle, under Mr. Thomson for two years. From thence he went to be foreman under Mr. J. Garrett, at Whittinghame Gardens. His next place was Wrotham Park, the seat of the late Earl Strafford, where he stayed for a year. From there he removed to the Viceregal Lodge, Dublin, as foreman under the late Mr. G. Smith, where he remained three years. Mr. McKenzie was then appointed head gardener to Lord Inchequin at Drumolond, County Clare, but stayed there only a short time, and returned to Scotland and served for a time under the late Mr. Dunn, at Dalkeith gardens, where he awaited a head place. He also went to Mr. David Thomson, when the latter opened Craigleith Nurseries. He next became head gardener to the late Dowager Duchess of Montrose at Riddlesworth Hall, Norfolk, in March, 1877; and finally was appointed gardener at Linton, under the late Viscountess Holmesdale, in August, 1882. On her death in 1884, he was engaged by the present owner, Mr. F. S. W. Cornwallis. It will be seen that Mr. McKenzie had a varied and first-class experience in many of the best known gardens in the country. *S. M.*

GOOSEBERRIES ON NORTH WALLS.—Mr. J. Fulton has been unfortunate in his selection of varieties, or the soil in his garden is unfavourable to their proper development. My experience with cordon-trained Gooseberries on walls having a northern aspect, has been altogether satisfactory. A member of the staff of the *Gardeners' Chronicle* visited these gardens in the year 1898, and referred to the cordon Gooseberries; mention was made to them appreciatively in the issue for October 29 of that year. I have proved for the past six years that fruit of better appearance and flavour for dessert can be grown by this method than any other. The Gooseberry, when well grown and ripened, has a flavour all its own, and is appreciated by a great many employers as much as a dish of Grapes, Peaches, or a Melon, especially late in September and October, when the glut is over, and I find by the empty dishes that they are highly appreciated. Gooseberries are extensively grown in these gardens on the cordon system, both on trellises in the open garden and on walls having a north aspect, and in both instances the results are so good that we do not grow them by any other mode of training, nor intend so to do. The advantages of the cordon system may be summed up thus: the trees obtain the maximum amount of sun and light, they take up less room than bushes; the fruit being well away from the earth, the fruits are not splashed with soil as they are apt to be on bushes; the fruit can be easily protected from birds, and by placing a double thickness of fish-netting over the trees the ripening of the fruits is retarded without detriment to their flavour; and if wasps attack them a piece of wasp-proof netting will preserve them; finally the fruit can be gathered with greater convenience. It would be hard to find a more lucrative fruit for planting against north walls than the Gooseberry. The plant is not overfastidious as to soil, though it delights in one having a dry, gravelly subsoil. The situation must be an open one, well away from the influence of large trees. The trees we have on a north wall 180 feet in length, and 10 feet high, are disposed 10 inches apart, and the surface of the wall is wired at 6 inches from wire to wire from the ground to the top of the wall. We prune them twice a year, viz., in the summer, when the young growths attain 9 inches or a foot in length, and again in the winter, when the spurs are shortened back to within two or three buds of the old wood. The trees are all trained on the single cordon system. The varieties grown for late use are chiefly Warrington, Pitmaston Greengage, Gregory's Perfection, and White Lion, though we depend chiefly upon the first-named. The thick-skinned varieties are without doubt the best for hanging late, as is the case with other fruits, notably Grapes. For trellises in the open garden we depend mainly upon Whinham's Industry, Whitesmith, Crown Bob, Red Champagne, Sulphur, and Antagonist. *H. T. Martin, Stoneleigh Abbey Gardens, Kenilworth.* [The results are excellent. ED.]

—— Your correspondent, p. 28, *Gard. Chron.*, Jan. 10, seems to me to wish to depreciate the Gooseberry as a dessert fruit. I am quite sure he has very much to learn if he thinks for one moment that the Gooseberry is not a popular fruit. My idea when I wrote the paragraph was to show that good, sound, and delicious fruit could be grown in the manner described. I said nothing about small, badly-flavoured fruits. Your correspondent seems to have drawn his own conclusions. Most gardeners when engaging with an employer study in every possible manner to cultivate those fruits, &c., which their employer desires. Some gardeners, I know, like to do the contrary. In cultivating Gooseberries to carry fruit late in the season, I was carrying out the wishes of my employer, who informed me that his favourite fruits were Gooseberries and Figs, and that Gooseberries he must have at any cost, because they contained the chemical properties which suited his ailment. Naturally, I turned to account every means to obtain fine fruit for as long a season as possible, nor was I confined to any number of bushes or varieties. Now, as to flies, wasps, and bees: your correspondent must have been very lucky to have alighted on a spot where none of these pests spoil the fruits. In a hot, dry season, if precautions are not used, a crop of sweet Gooseberries is soon cleared, and sometimes in spite of all the gardener can do, and not only Gooseberries, but Morello Cherries. Now as far as the merits of the Gooseberry or Melons are concerned, that is matter for individual opinion. Personally, I like a nice Gooseberry fresh from the bush in preference to the best Melon ever grown. In the north country, Gooseberries are much prized and splendidly grown, and in great variety and well shown. I consider all fruits are good when well grown, and some are highly valued by everyone; all of us have our likes and dislikes, and I for one claim that the Gooseberry makes a most welcome change in any dessert. *W. A. Cook, gr., Erlestoke Park.*

—— Mr. James Fulton must not imagine that everybody's taste is the same as his own in the matter of fruits. I planted a north border half the length of the kitchen garden, probably 80 or 100 yards, and 5 yards wide, with Gooseberries, mostly Red Warringtons, at Longleat, for the late Marquis of Bath, and covered it with ½-inch wire-netting. This supplied Gooseberries till very late in the season, frequently into November; and although the noble Marquis and his guests were not without other fruits of good quality, the Gooseberries were very much appreciated. *W. M. Taylor.*

—— It would, I think, have been more interesting if your correspondent "Old Gooseberry," had confined his remarks more strictly to the heading of my note "Late Gooseberries on a North Wall as a Dessert Fruit," but as he has not done so, it is unnecessary for me to say any more on the subject, unless to inform him that my experience in Gooseberry culture has not been confined to one locality as he seems to suppose, but in widely separated parts of this country, Scotland, and Ireland; and comparing the results of experience thus acquired, I have come to the conclusion already stated, viz., that the Gooseberry on a north wall is absolutely useless where fruits for dessert are required. *James Fulton, gr., Grims Dyke, Harrow Weald.*

AUDIBLE GROWTH.—There is a passage in Mr Peter Barr's communication from the Cape in your issue of December 20, 1902, where he alludes to the grass growing with such rapidity after rain that "you can hear it whistling," which receives a curious corroboration from Lieut.-General Sir Charles Warren's recent volume, *On the Veldt in the Seventies.*" At p. 95, Sir Charles writes: "A few days ago I lay down at the foot of a hill on the bare ground, shortly after the first rains, not a blade of grass near me, all night long I heard little clicks all about me, and at last I struck a light and waited till I heard a click, and then located it; then I found it came from a tiny blade of grass which had been folded up in its sheath and had suddenly escaped with a click. I am glad to have heard grass actually growing. I wonder who invented the term 'springing up,' as applied to grass, it exactly describes the operation." *W. T., Ipswich.*

ROSE MARIE LAVALLÉE.—Superlatives are greatly abused forms of speech. But for the benefit of those who grow climbing Roses it is worth saying that a Rose named Marie Lavallée was this year by far the most brilliant and conspicuous of some hundreds of different Roses on a pergola 150 yards long. I believe I got it from Nabonnand, but as I have not his catalogue I cannot be sure. I think it is offered by Guillot as Marie Levalley; I have not yet seen it in an English catalogue. *A. K. Bulley, Ness, Neston, Cheshire.*

VIBURNUM TINUS.—A few remarks on this plant, *anglice* Laurestinus, may be of interest to those who contemplate planting winter-flowering shrubs. Our bushes in early December were clothed from top to bottom with flowers and flower-buds, making a gay display. These plants are in fully exposed situations, and yet they were not at all injured by the severe frost which had occurred shortly before. For cutting purposes the flowers are valuable for their lasting qualities and beauty. A hedge of a height of 5 or 6 feet, and a proportionate width, is truly a fine sight when in flower; and this is a good mode of planting the Laurestinus. *J. Murray, Sopley Park, Christchurch.*

HYDRANGEA PANICULATA AS A FORCING PLANT.—Your correspondent, "S. C.," says, "I trust 'E. B.' did not conclude that this was *the* pruning." I cannot see how I could arrive at any other conclusion, as immediately following the sentence I quoted from his article he says, "In order to make the plant symmetrical, and induce buds at the bottom to break." He also gives details of housing the plant, but mentions nothing about any further pruning. I should not have troubled to take up any more of your valuable space on this subject, only that the proper pruning of this plant is an important factor in its successful culture, and I maintain that a beginner would not obtain the best results by following the lines of "S. C.'s" article; and in these days of competition, it is only a waste of time and money to put inferior and badly-grown stuff on the market. *E. B.*

ENGLISH CHESTNUTS.—Not to be guilty of a misnomer, I may be permitted to say Sweet or Spanish Chestnuts are produced abundantly, of goodly size and ripeness, in South Wales, if not "English." In the extensive park at Dynevor Castle, South Wales, a domain second to none in the British Isles for expanse and the beauty and variety of its views, numerous large fine trees produce freely of large well-coloured nuts six years out of every seven. Indeed, it is the rule for them so to do, the exceptions being very rare. So well do these trees bear that they are sought for each year by residential trespassers. I have not seen the tree mature the "nuts" in any

other part of England to anything like the same extent. Judging by the excellence of these Welsh nuts, there seems little doubt that crops may be grown in that part of the Principality; and certainly, they have been usually superior to the poor examples sold in this country during the present winter. But well known, early ripening, good varieties, such as Prolific, Downton, Masters' Canterbury, &c., should be grafted on stocks of La Châtaigne de Bois, &c., and the best of the French Marrons. *William Earley.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 13.—*Present:* Dr. M. T. Masters, F.R.S. (in the Chair); Messrs. Baker, Odell, Saunders, Worsdell, Bowles, and Holmes, Drs. Rendell and Cooke, Revs. W. Wilks and G. Henslow (Hon. Sec.).

Mezereon dying.—Mr. HOLMES showed specimens, and remarked upon the suddenness with which they died off. Dr. COOKE undertook to examine and report upon them.

Ranunculus arvensis.—He also referred to this plant as said by Sowerby to be poisonous to sheep.

Cedrus Deodara.—Mr. BOWLES exhibited a male catkin of this tree, which had become branched, bearing several branches, all being staminiferous.

Pinus Bungeana, bark.—Dr. MASTERS showed a specimen of the bark of this tree from China, which was silvery-white and scaling off. He mentioned that Abies arizonica had a similar bark, both resembling that of the common Birch.

Maize androgynous.—Dr. MASTERS also showed specimens, received from Mr. F. M. Bailey, of Brisbane, Queensland, of which the following were typical examples:—(1) This had one small cob of grains arising from the base of nine male spikes; single female flowers were scattered at intervals on the latter, both near the bases and summits. (2) Fifteen male spikes had one terminated with a small cob; isolated female flowers were scattered throughout among the male flowers. (3) This had about twelve male spikes, all being female below and terminated by male flowers above; the whole formed a dense mass of small cobs, giving the appearance of a prolific cob with male flowers above.

Practical Pollination. — Mr. DAVIDSON, of Fanners, Wickham Bishops, Essex, described an ingenious method of artificial fertilisation of flowers, as follows: "I have adopted a method of economising pollen, the ordinary camel's-hair brush being very wasteful. If a stick of sealing-wax be rubbed briskly on the coat-sleeve as for electrical experiment, and then presented to the flower, the pollen flies to it and adheres. Every particle can thus be utilised far more easily than with a brush."

Climbing Plants.—Mr. DAVIDSON also forwarded the observations he had made on Hoyas, &c.—"I have had a number of Hoya carnosa plants under observation for a considerable time, and though they twist resolutely enough in one direction during the day, the hours of darkness usually appear to have been a period of indecision, the work of the day being sometimes more or less undone during the night. While they are decided enough in twisting their way up living plants, they show no such decision in climbing up dead supports. For instance, if I slightly untwist a Hoya from a growing plant, it coils round again in a very short time; whereas, if a stick is substituted for a plant, the Hoya scarcely ever regains its old position without assistance." It was thought by the Committee that this difference was more due to the smooth or rough nature of the surface than the fact of the support being either alive or dead.

Yucca recurva.—Mr. WORSLEY sent some leaves, upon which Dr. COOKE reported as follows:—"The leaves of the Yucca recurva exhibit long dark streaks, which I have observed before, but could never attribute to any specific form of fungus. In the present instance I have failed to discover any hyphæ or spores, but probably if watched there might be some future development. At present there is no evidence of fungus parasitism, and I do not remember that any has been recorded as affecting the leaves of Yucca.

Loganberry Roots. — Mr. F. SHARPE, of Westbury, Wilts, sent some roots bearing nodules, upon which Mr. COOKE reports as follows:—"The nodules on roots of this plant resemble most of the root nodules which I have examined in giving no definite clue to any parasitism. There is no evidence of the presence of bacteria so far as I can detect (350 diams.); and nothing has resulted from preserving them for twelve days in a damp atmosphere."

Celeriac. — Dr. COOKE reports as follows upon the specimens sent to the last meeting:—"Roots marked with discoloured blotches or stains internally, and sometimes in circles or segments, at a short distance from the periphery. The discolored tissue did not exhibit any trace of hyphæ or anything further than the discoloration of the cell contents. I can see no indication or suspicion of fungus parasitism." The thanks of the Committee were given to Dr. COOKE for his report.

Peas Attacked by Grubs.—Mr. BAKER brought a sample of wrinkled Peas badly attacked by grubs, upon which the following report was made:—"There is nothing whatever in the condition of the Peas to indicate any injury beyond that produced by the magget which is common in green Peas. It is always the case in shelling culinary Peas that a certain proportion is maggoty. The condition of the sample is entirely due, in my opinion, to the fact that the wet and cold summer greatly increased the proportion of maggoty seeds. Not one of the seeds appeared to be attacked by the Pea-weevil, and wrinkled Peas grown in England are very seldom weeviled. The only Peas of English growth usually attacked are the early, round-seeded kinds, and then only in hot, dry summers, and when grown on light, dry soil. I doubt whether any sample of English Peas of last year's harvest was at all seriously attacked by the weevil owing to the absence of sun and heat."

Statistical Variations.— Mr. HENSLOW drew attention to a paper in the *Botanical Gazette*, vol. xxxiii., p. 462, on "The Numerical Relation of the Ray Flowers of Compositæ," by Mr. E. Mead Wilcox, in illustration of the mathematical and statistical study of variation, as throwing light upon the origin of species. Mr. Henslow expressed his disbelief in any advantage accruing from the statistical method, because such statistics are only based on "individual variations," which do not give rise to variations of which systematists can take any account—i.e., as long as the plants are living under the same conditions of life. They are merely fluctuating details, due to the qualities of growth.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

WORCESTER AUXILIARY.

THE annual meeting of the Worcester Auxiliary of the Gardeners' Royal Benevolent Institution was held at the Guildhall on Saturday evening, the 17th inst., Mr. C. E. Pipe in the chair. The seventh annual report expressed thanks to Earl Beauchamp for allowing his grounds and gardens at Madresfield Court to be thrown open for the benefit of the Fund, the proceeds of which realised £45 12*s.* 10*d.* It recorded that Mr. Jno. Bates, the Worcestershire candidate, who was supported at the last election of pensioners, obtained 1,528 votes, and solicited further support. To commemorate the Coronation of the King and Queen (patrons of the Institution), the general committee, London, voted £5 from the "Good Samaritan Fund" to each unsuccessful candidate who had not previously subscribed to the Institution, including Mr. Bates. All the unsuccessful candidates who had subscribed were put on the funds without further election.

The accounts showed receipts amounting to £123 2*s.* 4*d.* Expenses, including a grant of £110 to the parent society, having been paid, a balance in hand was left of £5 14*s.* 3*d.* The accounts had been audited by Mr. C. E. Pipe. Mr. White added that a grant of £50 would be made shortly, which would bring the contributions of the auxiliary to £670 for the seven years it had been in existence.

The accounts and report were adopted on the motion of Mr. Crump, who said that in sending up to the parent society nearly £100 a year they had done better than any other auxiliary. Mr. Hurlstone seconded. Mr. G. Gough moved, and Mr. Hurlstone seconded, the election of Lord Beauchamp as president, which was carried.

Mr. Crump moved that some scheme be adopted for systematically canvassing the gardeners employed in the county to become subscribers to the Institution. Mr. Crump's motion was carried. The committee was re-elected, with the substitution of Mr. Myatt for Mr. A. Russell.

A sum of £12 from the proceeds of the opening of Madresfield Gardens was offered to eight members on the condition that each paid five guineas, and the total of ten was sent to the parent society as a life member's subscription, and that the member became an annual subscriber.

BRISTOL & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

A VERY successful meeting of this association was held at St. John's Rooms on the evening of Thursday, when Mr. J. C. House, Coombe Nurseries, Westbury-on-Trym, delivered an excellent lecture on "Hardy Herbaceous Perennial Plants." Lieut.-Col. H. Cary Batten, J.P., presided over a good attendance, and was accompanied by Mrs. H. Cary Batten, their presence adding much to the enjoyment of the evening.

Mr. House advocated the more general employment in the garden of these beautiful plants, not to the exclusion of bedding plants, but to the reduction of the numbers of the latter, and as a means of adding floral beauty to the garden to the latest time possible in the autumn.

The lecturer gave a comprehensive list of the more beautiful plants that would succeed in Bristol and the surrounding district.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

TWELVE new members were elected at the last meeting, four of these, however, being over thirty-five years of age, are elected subject to the production of their certificate of birth. Nine members were reported on the sick-fund. Messrs. W. Gunner and T. H. Puzey were re elected to audit the accounts for the past year.

INTERESTING PRESENTATION.

THE Gloucestershire Root, Fruit, and Chrysanthemum Society celebrates its fortieth anniversary this year, and in recognition of the conspicuous and valuable services rendered to the Society by Mr. Sidney S. Starr, the secretary, he was presented by the members on Saturday, January 17, with a handsome gold watch and a purse of gold.

The Society has done excellent work in the county in bringing about improved results in farming, and in the more general culture and love of the Chrysanthemum; but it has also suffered in its earlier history from the very prevalent complaint, "want of funds." In 1895, when Mr. Starr was appointed secretary, a deficit was turned into a balance in hand, and to-day the Society is more popular than ever, with a score more classes in the schedule than formerly, over 200 more entries at the last show, and about 100 more subscribers, while some £50 more was offered in prizes. That this improved condition of things is mainly due to the energetic labours of Mr. Starr was recognised by the valuable presentation of which he was made the recipient on Saturday.

NATIONAL FRUIT-GROWERS' FEDERATION.

JANUARY 12.—The above committee held a meeting at the Westminster Palace Hotel on the above date. There was a large attendance, and Col. C. W. Long, M.P. (President of the Federation), occupied the chair. The following members were present:—Messrs. A. Grant, W. Horne, H. Leney, F. Smith, Jno. Wood, C. H. Hooper, A. Miskin, A. S. White, W. Idiens, J. Idiens, A. H. H. Matthews, G. Manwaring, W. Freemantle, J. Evans, T. May, and A. T. Matthews (Secretary). The most important business at this meeting was the consideration of the best type of ventilated van for the conveyance of fruit, as to the building of which, certain railway companies are consulting with the Advisory Committee, and the official reply to the letter of the Board of General Managers in answer to the deputation of November 4. This reply was carefully drawn up, and directed to be despatched. It will be remembered that at the conference at the Clearing House it was proposed that a special advisory committee of the Federation should be appointed to confer with the railway officials on the details of the proposed reforms, and it is understood that this arrangement is already being carried out, and working very successfully. This gives the Federation a standing-ground never before even thought of by a growers' society, and justifies the expectation of great results. Meanwhile the organisation is spreading throughout the country, and its list of members growing steadily from week to week.

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

THE annual general meeting of the above association was held on Monday, the 12th inst., and was well attended. The report and the balance-sheet were presented by the secretary, and showed the association to be in a flourishing position. There had been an increase in the membership during the year; the total at the end was 223. The officers and committee were elected as follows:—President, Mr. Leonard Sutton,

for the third year in succession; Chairman, Mr. J. T. Powell, gr. at Park Place, Henley-on-Thames; Vice-Chairman, Mr. W. Barnes, gr. at Bear Wood; Librarian, Mr. E. J. Dore; Assistant Librarian, Mr. F. W. Exler; Treasurer, Mr. F. W. Macdonald; and Hon. Sec., Mr. H. G. Cox, were re-elected to their respective offices.

SCOTTISH HORTICULTURAL ASSOCIATION.

JANUARY 13.—The annual general meeting of the Scottish Horticultural Association was held at 5, St. Andrew Square, Edinburgh, on the above date—Mr. Charles Comfort, President, in the chair; there was a large attendance. The annual report, which was read by the Hon. Secretary, Mr. Peter Loney, stated that the past year had witnessed continued success in the affairs and objects of the Association. The papers read during the year had been full of interest and of educational value, and the attendance had been large and representative. The exhibits at some of the monthly meetings had also been highly creditable. The membership was now 1,180; 147 new members having been added during the year of whom fifteen were life members. Several names had been deleted from the roll, owing to the want of addresses and other causes. The Association tendered hearty thanks to those who, by their willing assistance, had contributed to the success of the show. Mr. McHattie, in moving the adoption of the report, said a hard but well won fight was the reflection with which they had closed their ledger for this year, and they opened the new one with the knowledge that they were able and willing to engage in a struggle to maintain the reputation of the Association, if necessary. He hoped they would all support the Association heartily. The report was agreed to. The financial statement showed a credit balance on the Chrysanthemum show of £91 8*s.* 3*d.*, and the funds of the Association at December 31 amounted to £378 12*s.* 2*d.* A short discussion ensued as to the circumstances under which the Association held thirty-five votes on the Gardeners' Benevolent Association, and it was agreed that the President and Council should look into the matter, and report to the next meeting. The financial statements were approved of. The following office bearers were appointed:—Hon. President, the Most Noble Marquis of Lluithgow; Vice-Presidents, James Whytock, Dalkeith; Charles Comfort, Bloomfield gardens, Davidson's Mains. Council, Thomas Fortune, Alexander Johnston, George Wood, J. Anderson, Alexander Sclater, David W. Thomson, W. Copeland; President, J. W. McHattie. *The "Scotsman."*

CROYDON HORTICULTURAL MUTUAL IMPROVEMENT.

THE third Annual Dinner and Smoking Concert in connection with the above named Society was held at the Café Royal, Croydon, on the 14th inst., under the Chairmanship of Mr. J. J. Reid, one of the Vice-Presidents of the Society; Vice-Chairman, Dr. J. Brooke Ridley, and a pleasant evening was spent.

ROYAL CALEDONIAN HORTICULTURAL.

JANUARY 14.—The Annual General Meeting of the Royal Caledonian Horticultural Society was held on the above date in Dowell's Rooms, George Street, Edinburgh, Mr. D. P. Laird presiding over a large attendance.

Mr. P. Murray Thomson, Secretary, read the Council's Annual Report, which stated that the change of the date of the spring show last year from the beginning of April to the beginning of May proved a success as regards the attendance, and as an exhibition of horticulture the show did not in any way suffer. The entries numbered 511, compared with 500 in 1901. One encouraging feature was the interest shown in the competition for plans prepared by under gardeners, twenty one plans being sent in: and the Council had pleasure in reporting that Sir John Gilmour had again placed at their disposal the sum of £5 to continue this competition. The total entries for the autumn show of 1901 were 2,182, and for the same show in 1902 were 2,410. A special effort was made towards the close of last year to increase the membership, when the President (Lord Balfour of Burleigh) issued a letter containing printed particulars of the Society. The effort met with good result. During the year the Society lost by death and resignation 36 members, while 19 life members and 154 annual members had joined, a nett increase of 137 1901 was the first year when gardeners and horticultural *employés* might be enrolled at 5*s.* Thirty-eight were then enrolled; and during the past year 43 new members had been enrolled. The surplus of the fund raised to provide a memorial of the late Mr. Malcolm Dunn, gr. at Dalkeith Palace, had been invested for the purpose of providing an annual prize in horticulture, and the trustees had offered the prize for the first year to the Society. It would be given as the 1st prize at the autumn show for a collection of Apples grown in Scotland. The financial statement showed that the ordinary receipts amounted to £1 272, being £1 15*s.* 10*d.* more than the payments, while the capital account received an addition of £165 18*s.* from life members' subscriptions. The funds amounted to £715 17*s.* 7*d.*, as against £557 a year ago.

On the motion of Mr. William Mackinnon, seconded by Mr. David Thomson, the Report and the balance-sheet were adopted.

Mr. J. Martin White, of Balruddery, was elected Vice-President, and the following members of Council were appointed:—gardener, Mr. J. W. McHattie, Edinburgh City gardener; nurseryman, Mr. John Methven, Edinburgh; independent member, Mr. A. D. Richardson, Edinburgh. *The Scotsman.*

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

ANNUAL MEETING AND ELECTION OF PENSIONERS.

JAN. 23.—The sixty-fourth annual general meeting of the members and subscribers of this excellent Institution, was held at "Simpsons," Strand, on Thursday last, as these pages were passing through the press.

Mr. Harry J. Veitch, Treasurer and Chairman of the Committee presided, and there was a satisfactory attendance. After the reading of the minutes, the report of the Committee, and the accounts of the Institution (as audited) for the year 1902 were adopted unanimously and with satisfaction. Officers for the ensuing year were elected, and other business of a routine character transacted.

The Chairman read the following letter from Mr. N. N. Sherwood, a generous supporter of the Institution:

"I am grieved indeed to see there are so many applicants for the Pension this year who cannot possibly be elected. I read with great interest the letter in the [*Gardeners'*] *Chronicle* of last Saturday, and I wish to give each of the unsuccessful candidates, who have been subscribers, the sum of £5. I do this with great pleasure as a thank-offering for my recent recovery from my illness."

The following resolution was passed with acclamation, "That the action of the Committee, graciously approved by the President, H.R.H. the Prince of Wales, in placing on the funds the eleven unsuccessful candidates, formerly subscribers to the Institution, to commemorate the Coronation of their Majesties the King and Queen, Patrons, be, and is hereby confirmed."

The Committee reported that during the year 1902 the following widows of pensioners have been placed on the funds without election in accordance with Rule iii., 13:—Mary E. Mackintosh, aged 71; Sarah Trotter, aged 81, and Mary Ann Wilder, aged 69.

The Committee also recommended that fifteen candidates be elected pensioners on the funds that day. The poll opened at 3.15 and closed at 4.30 P.M., with the following result:—

1	JANE KENT	6741 Votes
2	JANE TEMPLE	4216 ,,
3	W. B. GLASSCOCK	3308 ,,
4	EMMA HONESS	3195 ,,
5	JOHN BATES	3063 ,,
6	W. J. STACEY	3056 ,,
7	RACHEL TEGG	3046 ,,
8	CHARLES PUZEY	3015 ,,
9	GEORGE R. ALLIS	2991 ,,
10	STEPHEN BRACEBRIDGE ...	2968 ,,
11	WILLIAM WALL	2878 ,,
12	WILLIAM DARVEL	2850 ,,
13	ROBERT C. ALLISTON ...	2825 ,,
14	JAMES LEVELL	2761 ,,
15	ELIZABETH GOWER ...	2602 ,,

There were thirty-one unsuccessful candidates. Of the fifteen elected ten had contributed to the Institution, and five had not. Mary Dounan and John Price, each of them 83 years of age, were subsequently placed on the Funds by a right vested in the Committee.

In the evening the Annual Friendly Supper took place also at "Simpsons."

NATIONAL DAHLIA.

THE schedule of prizes to be offered at the next grand annual exhibition of this society, to be held at the Drill Hall, Buckingham Gate, Westminster, on September 1 and 2, will include a new departure of considerable interest to exhibitors. As the result of a general subscription amongst members, three Silver Challenge Cups will be offered for competition, namely, a Ten guinea Cup in the premier Cactus Dahlia class for nurserymen (eighteen varieties in bunches of six blooms each); a Ten-guinea Cup in the premier Cactus Dahlia class for amateurs (nine varieties in bunches of three blooms each); and a Five-guinea Cup in the premier class for show and fancy Dahlias, amateurs (twenty-four blooms, distinct).

In addition to the above, Messrs. Dobbie & Co., Rothesay, will present a Gold Badge, value three guineas, for twenty-four blooms Cactus Dahlias, distinct varieties (amateurs), the gift to be repeated at the two following exhibitions of the society in 1904 and 1905. The prize-money in this class (Class 24, which is altered from eighteen blooms to twenty-four blooms), and in that for nine varieties in bunches of three blooms, has been increased, and three new vase classes have been added.

The annual report and schedule for 1903 will shortly be issued to members.

CHINESE MAPLES.

(*Continued from p.* 22)

ACER.—The Chinese species of Maple exhibit, if we exclude the peculiar American Negundo, practically every type that is known in the genus. The primitive type of foliage in Acer is the simple entire leaf, such as occurs in Acer oblongum. From this we proceed to simple toothed or dentate leaves; then we have species with tri-lobed leaves, and others with five to seven-lobed leaves. Trifoliolate species mark in China the limit of evolution. In American Negundo, the leaves become further decompound in the species with five leaflets arranged in pinnate fashion. In the following list, I make a few remarks concerning each species, noting those that may be seen now in Coombe Wood. I omit species that have not been collected by Mr. Wilson and myself, and it is possible when the whole of Mr. Wilson's specimens are examined carefully, that other species may be added.

SIMPLE-LEAVED SPECIES.

1. *Acer oblongum*, Wall.—This is a common tree in Hupeh and other parts of China. It also occurs in Formosa and in the Himalayas. It grows wild in a diversity of climates, and is as much at home in the Botanic Gardens of Calcutta as in the mountain forests of the Himalayas. It has oblong or ovate acuminate coriaceous leaves, quite entire in the margin. It displays great variation, both in fruit and in foliage, and Pax enumerates several distinct varieties, as—

(*a*) *A. glaucum*, Schwerin.—This is the commonest form; in it the leaves are glaucescent underneath.

(*b*) *A. latialatum*, Pax, with fruit having broad wings; this occurs in Hupeh.

(*c*) *A. concolor*, Pax.—The leaves underneath are green, and not glaucous. Hupeh.

The variety *microcarpum*, Hiern, of the Mishmi Hills, with small fruit, is also met with in the Loochoo Islands. In the Kew herbarium, my 3199A from Hupeh is perhaps the most interesting variety; it may be styled *var. triloba*, Henry. In this the leaves become tri-lobed, and the margin is remotely but sharply serrate. This specimen was taken from a lower branch of a very large tree growing near Ichang. The foliage of the upper part of the tree was of the ordinary type.

2. *Acer lævigatum*, Wall., occurs in Szechwan, and also in Hong Kong and the Himalayas. This has foliage like the last species, but distinctly reticulate, and green on both sides.

3. *Acer, sp. nova* (?)—Collected by Mr. Wilson, in Hupeh. This resembles the two preceding species, but seems distinct.

4. *Acer cordatum*, Pax.—The leaves are papery, reticulate, cordate at the base, and minutely serrulate. Hupeh.

5. *Acer stachyophyllum*, Hiern.—This has serrate, ovate, caudate-acuminate leaves, hoary-velvety on the under surface; it is in cultivation at Coombe Wood, and is a pretty species. It was described by Hiern from Himalayan fruiting specimens, the flowers being unknown. Pax described a new species, *A. tetramerum*, from young flowering branches, collected by me in Hupeh; and he had only male flowers. I think this species of Pax will turn out, when Mr. Wilson's specimens are examined, to be the same as Hiern's earlier-described species.

6. *Acer Davidi*, Franchet.—Hupeh and Szechwan. This has coriaceous, acuminate, simple crenulate-dentate leaves. It is in cultivation at

Coombe Wood, and is close to *A. Hookeri*, Miq., a Himalayan species. Two forms occur, one with the leaves somewhat tomentose beneath, and the other glabrescent in the adult stage.

7. *Acer sikkimense*, Miq.—A variety of this with serrulate leaves occurs in Yunnan (my No. 10,640). This species is close to the last-named; but the fruit is borne on very short pedicels, or is almost sessile.

8. *Acer laxiflorum*, Pax.—This was described from specimens found by Mr. Pratt, at Tachienlu, on the confines of Tibet. The leaves and flowers are contemporaneous. The leaves are dentate-lobulate, and sharply serrate; they are borne on long petioles, and have long acuminate points. This species was found by Wilson in Hupeh, and is in cultivation at Coombe Wood. *Augustine Henry.*

(To be continued.)

WAS BOTTICELLI A BOTANIST?—In a picture in the National Gallery, representing the Ascension of the Virgin, the lid of the tomb is represented in process of removal, and showing the interior of the sarcophagus filled with white Lilies, some twenty or thirty, perhaps, in number; but all, without exception, with five segments to the flower. In another picture by GIOVANNI BELLINI, representing St. Dominic, the Lily is also represented with five perianth-segments. We fear the artists painted from fallacious memory, and that the addition of a sixth petal since the fifteenth or sixteenth century is not to be regarded as the result of evolution.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period Jan. 11 to Jan. 17, 1903. Height above sea-level 24 feet.

1903. JANUARY 11 TO JANUARY 17.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR. At 9 A.M. Dry Bulb.	Wet Bulb.	DAY. Highest.	NIGHT. Lowest.	RAINFALL.	TEMPERATURE OF THE SOIL at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	LOWEST TEMPERATURE ON GRASS.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 11	N.E.	35·0	33·8	36 0	32 0	...	41 7	44 3	46 1	21 4
MON. 12	N.E.	31·8	30 7	34·0	30·6	...	39 1	43·7	46 1	24 4
TUES. 13	N.E.	29 0	28·2	32 5	26 7	...	37·7	42 8	46 0	18 7
WED. 14	E.N.E.	29·5	28·3	32 2	29 5	...	33·7	41·9	45 9	22 1
THU. 15	N.E.	27·9	27·2	33·2	27·0	...	36 1	41·2	45 7	15·8
FRI. 16	E.S.E.	27·2	25·5	32 0	25·8	...	35 7	40 8	45 3	16 1
SAT. 17	E.S.E.	29·1	28·6	37 0	23·6	0·36	35 1	40 3	45 0	19 1
						Tot				
MEANS	...	29 9	28 9	34·1	28 3	0·38	37·4	42·1	45 7	19 7

Remarks.—A dry week, with very cold, north-east winds, and rain on the evening of the 17th inst.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Jan. 17, is furnished from the Meteorological Office:—

"The *weather* during this period was very cold and wintry. Snow fell in many places during the first day or two, but the conditions subsequently became dry generally until Friday or Saturday. On the former day rain was experienced over the south-western parts of the Kingdom, heavily in the south of Ireland, and on the latter, sleet or cold rain fell over the western, central, and southern parts of England. Thunder was heard at Fort William both on Wednesday and Friday, and there was a "silver thaw" in London, on Saturday evening.

"The *temperature* was as much as 16° below the normal in the Midland Counties, 9° in Scotland, W., and the western half of England, and between 8° and 6° in other parts of the Kingdom. The highest of the maxima were recorded as a general rule, towards the end of the period, and ranged from 50° in the Channel Islands, and 49° in Ireland, S., to 40° in Scotland, E., England, N.E., and the Midland Counties. At inland stations the daily maxima during the week were frequently below 32°, and at Lairgon, on Tuesday, the highest reading was no more than 20°. The lowest of the minima were mostly recorded about the middle of the week. In Scotland, N. (at Braemaron, on the 13th), the screened thermometer registered a minimum of 1°, and on the following day, that at Lairg, Scotland, N., fell to 6°. Elsewhere, however, the minima ranged from 12° in England, N.W., and 13° in the Midland Counties, to 20° in Ireland, S. and 25° in the Channel Islands.

"The *rainfall* was less than the mean, and in some districts the fall was scarcely appreciable.

"The *bright sunshine* exceeded the mean generally, but was deficient in Scotland, E. and W., and England, N.E. The percentage of the possible duration, ranged from 41 in England, N.W., 39 in the Midland Counties, and 37 in England, E. and S., to 13 in Scotland, E., and to 12 in Scotland, W."

THE WEATHER IN WEST HERTS.

THE present cold period, which has now lasted ten days, has been chiefly noteworthy for the dry and searching character of the easterly winds in the early part of it, and during the last few days, for a "silver thaw," followed by a singularly calm and moist atmosphere, also for the almost entire absence of snow. On five consecutive nights the exposed thermometer registers from 15° to 19° of frost—the latter by no means an exceptionally low reading for January. The ground is now about 10° colder at one foot than before the frost set in. Rain, hail, and sleet fell several days, but the total measurement amounted to little more than a ¼ inch. The fall of rain, sleet, and ice crystals on the night of the 17th, on reaching the frozen ground caused what is termed a "glazed frost," or "silver thaw," so that on the following day the roads and pathways were covered with a thin sheet of ice, and consequently extremely slippery. For only one day was the passage of water through the percolation gauges entirely stopped by the frozen state of the ground. For the seven days ending the 16th, the record of clear sunshine averaged nearly four hours a day, but since then the weather has been exceptionally gloomy. The winds and light airs have come exclusively from some easterly point during the whole of the cold period. The 18th was a particularly cold day, the mean rate of movement of the air being less than a quater of a mile an hour. The atmosphere remained very dry until the 18th, but since then it has been saturated with moisture. On the 14th, the relative humidity of the air at 3 o'clock in the afternoon (100 being taken as complete saturation) was 52, indicating a drier air than any yet recorded here in the month of January. *E. M., Berkhamsted, January 20, 1903.*

MARKETS.

COVENT GARDEN, January 22.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Adiantums, doz.	4 0–	8 0
Aralias, per doz.	4 0–	8 0
Arbor Vitæs, doz.	9 0–	18 0
Aspidistras, per dozen ...	18 0–	36 0
Aucubas, per doz.	4 0–	8 0
Azaleas, each ...	2 0–	4 0
Begonia Gloire de Lorraine ...	8 0–	10 0
Chrysanthemums, various	6 0–	8 0
Cinerarias, p. dz.	9 0–	10 0
Crocus, per box...	1 0	1 6
Crotons, per doz.	12 0–	24 0
Cyclamens, p. dz.	10 0–	18 0
Daffodils, per doz.	6 0–	10 0
Dracænas, var., per dozen ...	12 0–	48 0
Ericas, per dozen	8 0–	18 0
Euonymus, vars., per dozen ...	4 0–	6 0
Evergreen, p. doz.	4 0–	18 0
Ferns in variety, per dozen ...	4 0–	30 0
Ficus elastica, per dozen	9 0–	24 0
Genistas, p. doz.	8 0–	10 0
Hyacinths, p. doz.	12 0–	15 0
— Roman ...	8 0–	9 0
Lily of the Valley, per dozen ...	10 0–	12 0
Lycopodiums, pr. dozen	4 0–	5 0
Marguerites, per dozen	6 0–	8 0
Orange-trees, each	3 0–	7 6
Palms, various, each	3 0–	20 0
Poinsettias, doz.	6 0–	8 0
Pteris tremula, per dozen	4 0–	8 0
— Wimsetti, per dozen	4 0–	8 0
— major, per dz.	4 0–	8 0
Solanums, p. doz.	6 0–	12 0
Tulips, red, box	1 0–	4 0
— white, p. box	1 0–	4 0
— yellow, p. box	1 0–	4 0

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Anemones, per dozen bunches	1 6–	2 0
Azaleas, per dozen	4 0–	6 0
Bouvardias, per dozen bunches.	6 0–	8 0
Callas, per dozen	4 0–	5 0
Camellias, per dozen	2 0–	3 0
Carnations, per bunch	1 0–	3 0
Chrysanthemums, various, per doz. bunches ...	6 0–	18 0
Daffodils, p. doz. bunches ...	8 0–	10 0
Eucharis, per dozen	2 0–	3 0
Ferns, Asparagus, per bunch ...	1 0–	2 6
— French, per doz. bunches	0 4–	0 6
— Maidenhair, per dozen bunches ...	4 0–	6 0
Freesias, per doz. bunches ...	2 0–	3 0
Lilium album, per dozen blooms ...	1 6–	2 6
— auratum, per bunch ...	2 0–	4 0
— longifolium per bunch...	4 0–	8 0
Lily of the Valley, pr. dz. bunches	6 0–	12 0
Marguerites, yellow, per dozen bunches	1 6–	2 0
Mignonette, doz.	2 0–	3 0
Mimosa, p. bunch	0 9–	1 0
Narcissus, per bunches... ...	1 6–	5 0
Orchids (Cattleya) dozen blooms...	12 0–	15 0
Pelargoniums, Scarlet, dozen bunches... ...	3 0–	6 0
— White	4 0–	6 0
Roman Hyacinths, dozen bunches	8 0–	12 0
Roses, Mermet ...	3 0–	6 0
— various, per bunch... ...	1 0–	2 0
— white, bunch.	2 0–	3 0
Smilax, per dozen trails	1 6–	2 6
Stocks, per dozen bunches ...	2 0–	3 0
Tuberoses, per doz. blooms ...	0 8–	1 0
— per bunch ...	3 0	...
Tulips, all colours, per bunch ...	0 6–	1 6
Violets, per dozen bunches ...	1 6–	2 6
— Parma ...	1 0–	2 6
White Lilac (Fr.)	3 6–	4 6

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per sieve ...	2 0–	3 6
— dessert, various, per bush.	4 0–	6 0
— culinary, Wellingtons, various cookers, per bush. ...	4 0–	8 0
— Californian, cases	8 0–	9 0
— American, per barrel ...	16 0–	20 0
Bananas, bunch	7 0–	12 0
— loose, dozen	1 0–	1 6
Chestnuts, French, per bag ...	7 6–	14 0
— Italian, per bag	16 0	—
Cobnuts, per lb. .	0 3–	0 3½
Cranberries, per case	16 0	—
Grapes, Almeria, per doz. lb. ...	4 0–	5 0
— Alicante, lb. .	0 8–	1 3
— Colman, A., lb.	1 6–	2 0
— — B., per lb..	0 6–	1 0
— Muscats, A., lb.	4 0–	6 0
— — B., per lb.	1 0–	2 6
Lemons, per case	8 0–	12 0
Lychees, packet .	1 0	—
Oranges, case.....	10 0–	12 0
Pears, stewing, per basket ...	5 0	—
Pines, each ...	2 0–	4 0
Walnuts, Naples, cwt.	45 0	—

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen ...	2 6	—
— Jerusalem, per sieve ...	1 0–	1 6
Asparagus, sprue, bundle ...	0 9	—
— Paris Green...	5 0	—
— English, bund.	6 0	—
Beans, dwarf, lb.	2 0	—
— Madeira, bkt.	2 0–	3 0
Beetroots, bushel	1 0–	1 3
Brussels Sprouts, per sieve ...	0 9–	1 0
Cabbages, p. tally	1 6–	2 0
Carrots, doz. bun.	1 6–	2 6
— bag (washed).	2 0–	2 6
Cauliflowers, doz.	1 6–	2 0
— Italian, bkt.	2 6–	3 0
Celeriac, per doz.	3 6	—
Celery, per dozen bundles... ...	8 0–	14 0
Chicory, per lb.	0 3	—
Cress, per dozen punnets ...	1 3	—
Cucumbers, doz.	7 0	8 0
Endive, per doz.	2 0	—
Garlic, per lb. ...	0 3	—
Horseradish, foreign, p. bunch	1 3–	1 8
Leeks, p. dz. bun.	1 0–	1 6
Lettuces, Cabbage, per dozen ...	0 9–	1 0
Mint, doz. bun. ...	3 0–	4 0
Mushrooms, house, per lb.	0 8–	0 10
Onions, bag ...	4 0–	5 0
— English, per cwt.	5 0–	5 6
— foreign, case	6 0–	9 6
— picklers, per sieve	2 6–	3 0
Parsley, per doz. bunches ...	1 6–	2 0
— sieve . ..	0 9–	1 3
Parsnips, per bag	2 0–	2 3
Potatos, per ton	80 0–	115 0
— New Teneriffe, per cwt. ...	12 0–	14 0
— new, Kidney, per lb. ...	0 1½–	0 2
Rhubarb, Yorks., per doz.... ...	1 1½–	1 3
Salad, small, punnets, per doz....	1 3	—
Savoys, tally ...	2 0–	4 0
Seakale, per doz. punnets ...	15 0–	18 0
Shallots, per doz.	0 2	—
Spinach, French, crates	5 0–	6 0
Tomatos, Canary, deeps	4 0–	5 0
Turnips, p. dozen	1 6–	2 6
— bags	1 0–	2 0
Watercress, per doz. bunches...	0 6	—

REMARKS.—Cape Peaches per box of 18 to 24, made from 12*s.* to 24*s.*; Apricots, boxes of 24 to 30 made 10*s.* to 12*s.*; Grape fruits are 10*s.* to 12*s.* a box; Sweet Potatos per cwt., 12*s.* to 14*s.* The late frost stopped the supply of English Spinach; that which is quoted is French produce. Apples remain much about the same in price as last week, and the only English fruit in request are good Wellingtons. There are no good Pears on sale at the present time.

POTATOS.

Various samples, 77*s.* to 90*s.* per ton; Dunbars, red soil, 105*s.* to 115*s.* *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

GLASGOW, *January 21.*—The following are the averages of the prices during the past week:—Apples, American Baldwins, 11*s.* to 14*s.* per barrel; Canadian ditto, 14*s.* to 16*s.*; ditto, Kings, 20*s.* to 26*s.*; Greenings, clear fruits, 12*s.* to 14*s.*; various high-class red, 14*s* to 18*s*; do., green, 16*s.* to 18*s.*; Oranges, Valencias, ordinary, 420's, 6*s.* 6*d* to 7*s.* per box; large ditto, 9*s.* to 12*s.* ditto; 714's, 8*s.* to 9*s.* ditto; Onions, Valencia, 4*s.* 9*d.* to 5*s.* 6*d.* per cwt.; Lemons, 4*s.* to 5*s.* per box, and 7*s.* to 12*s.* per case Grapes, English, 1*s.* 9*d.* to 3*s.* per lb.; Almeria ditto 12*s.* to 20*s.* per barrel.

LIVERPOOL, *January 21.—Wholesale Vegetable Market.*—Potatos, per cwt.: Main Crop, 3*s.* 6*d.* to 4*s.*; Up-to Date, 3*s.* 2*d.* to 3*s.* 6*d.*; Bruce, 3*s.* 3*d.* to 3*s.* 9*d.*; Turnips, 6*d.* to 8*d.* per dozen bunches; Swedes, 1*s.* 2*d.* to 1*s.* 3*d.* per cwt.; Carrots, 2*s.* 3*d.* to 2*s.* 9*d.* do.; Onions, English, 4*s.* to 5*s.* 6*d.* do.; do, foreign, 2*s.* 9*d.* to 3*s.* 6*d.* per bag; Parsley, 6*d.* to 8*d.* per dozen bunches; Cauliflowers, 1*s.* 6*d.* to 2*s.* per doz.; Cabbages, 6*d.* to 10*d.* do.; Celery, 6*d.* to 1*s.* 3*s.* do. *St John's.*—Potatos, 10*d.* to 1*s.* per peck; Cucumbers, 6*d.* to 1*s.* each; Grapes, English, 2*s.* to 3*s.* per lb.; do., foreign, 6*d.* to 8*d.* do.; Pines, foreign, 3*s.* 6*d.* to 6*s.* each; Filberts, 8*d.* per lb.; Mushrooms, 1*s.* 6*d.* do. *Birkenhead:* Potatos, 10*d.* to 1*s.* per peck; Grapes, English, 1*s.* 6*d.* to 3*s.* 6*d.* per lb.; do, foreign, 6*d.* to 8*d.* do.; Mushrooms, 1*s.* per lb.; Filberts, 8*d.* do.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending Jan. 17, 1903, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

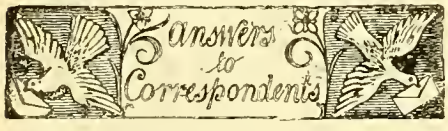
Description.	1902.	1903.	Difference.
	s. *d.*	*s.* *d.*	*s.* *d.*
Wheat	27 8	24 11	— 2 9
Barley	26 11	24 1	— 2 10
Oats	20 0	16 10	— 3 2

ENQUIRY.

SOUVENIR DE LA MALMAISON CARNATIONS FOR MARKET.—Will some readers of the *Gardeners' Chronicle* kindly furnish a note describing market growers' methods of cultivating this plant for the information of *A. W.*?

REPLY.

AUSTRALIAN MATCHES.—With reference to the enquiry in the *Gardeners' Chronicle* of Sept. 13, as to the woods used for matches in the Australian colonies, I beg to say that matches are not at present made in these colonies. We use an enormous quantity of wax matches; and the wooden matches are chiefly imported from England, Sweden, and Japan, the woods used in which are, of course, well known to you. *J. H. Maiden, Sydney.*



⁂ NOTICE.—Owing to the crowded state of our columns, several reports of society meetings and other communications are being held over till our next issue.

⁂ EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

AMERICAN BLIGHT ON APPLE AND PEAR-TREES: *Anxious.* Strong soap-suds made with soft soap, at the rate of 4 oz. per gallon of hot water, is a safe and effective remedy. First spread a sheet, new garden-mat, or tarpauling beneath the infested tree, and with a knife scrape and cut away all rough bark, especially in crevices and angles of the branches, then with a stiff scrubbing-brush apply the soap-wash to every part. Clear away the sheet, &c., and burn everything that has dropped on to it. A second application may be made before the wood-buds burst. Uncover the roots, and dreuch the soil about them with soap-suds, wheeling away the excavated soil and burying it at a spot widely distant from the trees; or better still, char it. Fresh soil may be placed over the roots, and made very firm. More than one annual application is needed to rid trees of the blight.

CRICKETS: *A. G.* As all other methods of killing and trapping have failed, we would advise that bell-glasses or 10-inch flower-pots be sunk in the bed, so as to be flush with the surface of the Melon-bed; a piece of slate or tile being placed under the pots and glasses, and some kind of bait put into each. By this means thousands can be caught.

CUTTING SEVERELY BACK THE LIMBS OF AN EVERGREEN OAK: *J. G.* The tree may be operated upon at the present season with every chance of your obtaining a good break of shoots in the course of the year. Let the wonnds be painted with lead colour, and afford them sheet lead cappings if you would make them impervious to wet for a number of years.

DESTRUCTION OF HORSE CHESTNUT-TREES: *A.D.W.* The fungus causing the death of these trees, as reported, and from the specimens sent, is Stereum purpureum, which has never before been charged with killing trees, although it is common on dead bark. Possibly, like its congener, Stereum hirsutum, it is a "wound parasite," and thus effects its purpose. It would be interesting to learn how it attacks the trees it destroys. Stereum purpureum is charged with causing the silver-leaf disease of Peaches. *M. C. C.*

ETHER IN FORCING PLANTS: *X. Y. Z.* This subject was mentioned in the *Gardeners' Chronicle* in the last volume, at pp. 379, 459, and 475.

FUNGUS ON STALE CHICKEN-FOOD: *G. H. E.* Phycomyces nitens—a mucor, commou on fat and greasy substances generally. *M. C. C.*

HABENARIA SUSANNÆ: *W. M.* We have not noticed the flowers of Habenaria Susannæ turn brown. Probably the dull weather may account for yours having done so this year.

NAMES OF FRUITS: *W. B.* 1, not recognised; 2, The Queen; 3, Edmund Jupp; 4, very fine fruit of Scarlet Pearmain.—*E. L.* Dumelow's Seedling.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Land.* 1, Plantago media; 2, Dryas octopetala; 3, Cystopteris fragilis; 4, Phyteuma spicatum (Campanulaceæ); 5, Valeriana officinalis (not an Umbellifer.—*J. J. B.* The plant belongs, probably, to Galiaceæ; but something more than a mere sketch without flowers is wanted to determine the order with certainty.—*P. J. P.* Male flowers of Garrya elliptica.—*C. S. & S.* Quercus cuspidata. If the percentage of salt is not more than ·010, we do not think there would be much risk in planting Rhododendrons or Camellias. Can you not try on a small scale first?—*Vesta.* 1, Cattleya Percivalliana; 2, Cattleya Trianæi; 3, Cattleya labiata; none of these are properly developed, and we are not surprised that you should not see the difference in the two last named, although the plants were bought under the names we give. —*G. G.* Odontoglossum maculatum; the variety is peculiar, in that it has but few markings on the lip.—*Foreman.* 1, Restrepia antennifera; 2, Phaius grandifolius; 3 and 4, Odontoglossum crispum; 5, Odontoglossum tripudians.—*Bromfield.* 1, Cypripedium Lecanum; 2, Begonia carminata rosea; 3, Lastrea lepida; 4, a form of Adiautum capillus-veneris; 5, Davallia polyantha, so far as we can judge by the immature barren frond; 6, a distinct form of Cypripedium insigne.—*X. Y. Z.* 1, Dendrobium × Ainsworthi; 2, Dendrobium nobile Cooksoni; 3, Dendrobium nobile.

PELARGONIUMS: *J. T. Y.* We have seen many such cases this year. There is no fungus visible, and we can only suppose that the plants have been growing when they should have been at rest, and that the new growths have suffered from the fluctuations of temperature and moisture, to which they have been exposed.

THE ORCHID-HOUSES IN OUR LAST ISSUE. *A.* Bad caligraphy was the cause of C. Euryades being given as C. Euryale, the latter a summer or late spring flower.

ZONAL PELARGONIUMS: *Zonal.* Being autumn-struck plants, you should pot in large 60's at the commencement of February, in loam two-thirds, and one-third leaf-mould or decayed horse-dung, and a small quantity of sharp sand, and place in an intermediate-house 50° to 60°, standing them near the roof so as to avoid spindly growth. Pinch out the point of the stem, afford water sparingly at the first, repot when the roots have permeated the soil, this time in 6-inch pots, and still keep them in the intermediate-house; tie out the shoots, nip out the points once more, afford air whenever the weather admits, and when the roots have reached the sides in great numbers afford a shift into 8-inch pots, place in a greenhouse, and keep slightly close for a week or two. The potting at each stage should be done with firmness, but no rammer must be used, and plenty of room should be left at the top of the ball for applying water. Do not crowd the plants, or allow them to get infested with aphids.

COMMUNICATIONS RECEIVED.—W. R.—R. I. L.—G. B., with thanks—M. M. Bruant-A. W.—J. W. McHattie—J. M.—G. H. G—A. W.—S. C.—F. J. F.—C S. & S.—W. Lewis—J. W., Ipswich—J. M.—W. C.—H. J. C.—Expert—J. F.—A. G.—W. Botting H.—J. Stoney—H. M.—J. H. & S.—W. C. L.—A. B. W.—R. D.—E. C.—G. P. M.—J. G. W.—W. H. & Sons—T. H. S.—A. D.—C. L. B.—H. W. W.—Youngster—A. McL. May—T. D.—Amateur—P. W. T.—J. A. C.—Cheales—H. A—J. M.—H. M.—E. H. J.—F. K., Berlin—W. A. C.—W. S., Wemyss Castle—W. C.—G. W.

DIED.—Many of our readers will learn with regret of the death, on the 19th instant, of Christina, youngest daughter of Mr. John Forbes, nurseryman, at Hawick, Roxburghshire, at the age of 21 years.

GARDENING APPOINTMENTS.

MR. J. WALLACE, for the past nine years Head Gardener at North Runcton Hall, King's Lynn, as Gardener to Mr. T. WILD, The Vineries, Drayton Road, Sipson, Yiewsley, Middlesex.

Mr. THOS. HATTON, until recently Head Gardener at Badgemore House, Henley-on-Thames, as Gardener to the Earl of CLANWILLIAM, at the same place.

Mr. D. M. MCKINNON, Gardener to F. A. NEWDIGATE NEWDEGATE, Esq., M.P., Weston-in-Arden, Nuneaton, as Gardener to that gentleman at Arbury Priory, Nuneaton.

Mr. JAMES STEWART, for the past five years Foreman in the Gardens, Belleisle, Ayr, N.B., as Head Gardener to Lady EMILY and W. VAN DE WEYER, New Lodge, Windsor.

Mr. G FREEMAN, Gardener for twenty years at Akeley Wood House, Buckingham, as Head Gardener to R. A. POLEHAMPTON, Esq., Field Burcote, Towcester.

Mr. H. B. JOHNS, recently Gardener at Burton Hall, Wirral, as Head Gardener to Sir HENAY COCHRANE, D.L., Woodbrook, Bray, co. Wicklow. Entered on his duties November last.

CATALOGUES RECEIVED.

SEEDS, ETC.

W. J. WATSON, LTD, Newcastle-on-Tyne.
LAXTON BROS., Bedford.
T. W. EDWARDS, LTD, Westerham, Kent.
ROBERT PRINGLE, 40, Belvoir Street, Leicester.
RICHARD SMITH & CO., Worcester.
SAMSON & CO., 8 and 10, Portland Street, Kilmarnock.
J. K. KING & SONS, Coggeshall, R.S.O., Essex, and Reading.
WM. BAYLOR HARTLAND, Cork, Ireland.
POPE & SON, Market Hall, Birmingham.
M. CUTHBERTSON, Rothesay, N.B. (also Hardy-flowering Plants).
ALBERT F. UPSTONE, 35, Church Street, and 1, Market Street, Rotherham, Yorks.
R. C. NOTCUTT, Woodbridge and Ipswich, Suffolk.
W. SMITH & SON, Aberdeen.

FOREIGN.

W. ATLEE BURPEE & CO., Philadelphia—Seeds, &c.
J. LAMBERT & SÖLENE, Trier—Seeds, &c.
H. CORREVON, Geneva—Seeds.

BEGONIAS AND CARNATIONS.

BLACKMORE & LANGDON, Twerton Hill Nursery, Bath

CHRYSANTHEMUMS.

ISAAC GODBER, Newtown Nurseries, Bedford.

A Terrace Garden at Bowood: photographed by Mr. Walter Rossiter, Bath.

THE
Gardeners' Chronicle

No. 840.—SATURDAY, JANUARY 31, 1903.

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DAME PERTELOT'S HERBS.

THOSE acquainted with the works of Chaucer, cannot but have been amused while reading the chiding bestowed by Dame Pertelot on Chaunteclere for imagining that his dreadful dreams were omens of impending evil; while she, void of sentiment, attributing their occurrence to biliousness, warned him of real ills that would certainly overtake him if her advice was neglected. Happily for Chaunteclere, his wife, like other old-world dames, while able to diagnose the disease, was also in a position to prescribe the remedy. One of the latest and best editions of Chaucer gives her prescriptions as follows:—

"A day or two ye shul have digestyves
Of wormes, er ye take your laxatyves
Of lauriol, centaure, and fumytere,
Or elles of ellebor that growith there,
Of catapuce, or of gaytres beryis,
Or erbe yve growing in our yerd that mery is."

The text, however, varies with editions, but that is by no means strange if we consider how Chaucer himself, concerning Adam Scrivener, tells how—

"Ofte a day I mote thy werke renew,
It to correct and eke to rubbe and scrape,
And all is thorow thy negligence and rape."

Later Scriveners we may be sure were equally negligent, and having no one to correct their work, misreading would grow apace. However, that by the way. The remarkable thing at the present day is the lack of unanimity existing among those who have set about identifying the plants represented by these simple names. Among the reasons for this may be mentioned a neglect to recognise the fact that all the plants are more or less strong purgatives, and also that a name in more than one instance represents more than one plant.

Taking the names seriatim, the "lauriol," our Spurge Laurel (Daphne laureola) is invariably correctly named. "Centaure," sometimes "Century," is referred by Prof. Skeat to "Centaurium," but as this is an incomplete designation, and may mean either Centaurium magnum (Centauria Centaurium), or C. parvum (Erythræa Centaurium), readers are left in doubt which to accept. The point, however, is made clear by referring to the "virtues" recorded as possessed by each, from which we gather that "the roote of the small or lesse Centorie (Erythræa Centaurium) is of no purpose for medicine, but the leaves, flowers, and juice of the same are very necessarie;" and as a medicine "it purgeth cholerique, &c., humours." Moreover, it is a not uncommon indigenous weed, while the other is exotic, and the root is the part used, and for complaints of a different character than those of Chaunteclere. With regard to "fumytere" it need only be said that all agree that the common fumitory is the herb meant. Like a few other common weeds, it enjoyed a very high reputation for its beneficial effects as a medicine. As regards "ellebor," however, there are differences of opinion as to what the plant cultivated by the widow might be. Professor Henslow, for instance, chooses Veratrum album; but as the root of this plant was the only portion used, it could be of no use to the afflicted cock. In many ways it is an interesting plant, for, as Neesewurt or Nosewort, it reminds us of a time when snuff was used medicinally, the powdered root having been employed, as Tobacco-snuff was afterwards, simply for physical reasons.

Another plant thought to be the representative of "Ellebor," is Veratrum nigrum, and so far as it is true that the foliage contains the "virtues" desiderated by Dame Pertelot, this plant would meet the requirements. Lyte, however, declares it to have been a rare plant, cultivated only in the gardens of certain "herboristes." Helleborus fœtidus, known in Chaucer's day as Ellebor and Saturgrasse, has many points to recommend it. It conforms as to medicinal qualities; it is a not uncommon indigenous plant, and on account of its supposed value in veterinary practice, it would be indispensable to the "pore wydow," as a ready-at-hand remedy in cases of disease among her "thre kyn, and eek a sheep that highte Malle." Gerarde gives a curious account of "settering" cattle, for which this plant was used, and hence called Setterwort and Setter-grass. Veratrum album has been called "Lingwurt," but this is obviously, too, the true Lungwort or Lyngwort, so named because in cases of lung disease in cattle, they were "settered" with portions of the root, or else small pieces were placed in the ears of the cattle, the idea being to extract the disease at the parts treated.

"Catapuce" has never been doubtful. It is the old Spurge, or "Purge," Euphorbia Lathyris. "Gaytres beryis," on the other hand, presents a difficult problem. It is spelled in a great variety of ways, and at one time was thought to mean the "gay tree." Later authorities, however, have referred it to gate-trëow or goat's-tree, or it may be "gate rys," the goat's bush, the more modern form, Gatteridge (with which compare Piperidge, the pipe-bush), being favourable to that meaning. Prof. Skeat thinks goat-tree to be identical with Rhamnus catharticus, the berries of which are purgative. Then there are those who, following Gerarde, assume that Cornus sanguinea was the plant; but the fact that this shrub possesses absolutely no medicinal property, disposes of its claims. At the same time, it is a curious coincidence that the berries, which are similar in appearance to those of the Buckthorn, were at one period imposed on purchasers of the latter as its fruit.

The Cornus has also a connection by name with Euonymus europæus, the following being common to both, namely, Dogwood, Prickwood, Spindle-tree, Catteridge-tree, and Gatteridge-tree. The latter designation connects it with "Gaytres," and inasmuch as the berries are strongly purgative they have been thought worth noting. There are, however, two considerations at least from which we cannot escape, which make it difficult, if not impossible, to accept either of these as Chaucer's plant. Pertelot, it may be remembered, offered to teach the terrified cock of herbs for his health—

"And in oure yerd tho herbes shul I fynde."

And he was advised to—

"Pike hem up right as they growe and et hem in."

These are counsels which in the case of large shrubs or low trees, like Buckthorn and Euonymus, it would be hard to follow. But the case is yet stronger against these when we recall to mind that their fruit is ripe in September, and the dream occurred, as Dryden has it, when—

"The pale Primroses and blue Violets spring."

There is a way out of these difficulties if we assume that "gaytres" in any of its varied spellings is not the word the poet used. We may take Ellebor as a case in point, which in Bell's edition has Elderberries instead, though of course wrongly. "Gladdin," also spelled in many ways is very near the word. Its common old name of "Spurgewort" indicates its affinity to the other plants from the poet's point of view. It was cultivated in gardens, though wild, and its berries, which were used as well as the roots, possess the property of remaining in their capsules till spring.

Concerning "erbe yve," there is room for some discussion, as the name has been appropriated by three plants, namely, by Plantago coronopus, by Ajuga Chamæpitys, and by Nepeta Glechoma. The common Ivy, too, has been brought forward, but mistakenly. The Plantago was known in Chaucer's day as Erbe Ivy, and is so named by Turner, Gerarde, and others, though Culpeper confounds it with Senebiera coronopus. As it acts as an astringent, it may be dismissed on that account. Ajuga Chamæpitys has been named as the herb Chaucer had in his mind, and between Nepeta Glechoma and it, there is only a slight distinction, as both seem to have been employed medicinally for the same purposes. The first named is known

to be a rare plant comparatively, and it is an annual. The other is extremely common, and is almost like the Nettle in making itself at home near the abodes of men, and may be picked up at any season of the year. In the words of Sir W. Temple it "is . . . of the most excellent and most general use and virtue of any plant we have among us;" and I imagine it has everything in its favour to securing it a place among the laxatives growing in the widow's garden.

There is just one appellative more which may, perhaps, not be one of Chaucer's—"wormes," to be taken as a "digestyve." These, no doubt, form a usual part of the food of poultry, and an old writer on the subject advises that hens be allowed to take their chickens "to worme." But it would seem that Chaunteclere had been already feeding to repletion, and on the face of it, "wormes" might be expected to aggravate rather than mitigate his symptoms. The word resembles so very closely the old name of Wormwood, a herb to this day highly valued as a stomachic, or as an old writer has it, "it quickly refresheth the stomach after large eating and drinking," that the point may be worth the consideration of those in a position to investigate it thoroughly. *R. P. Brotherston.*

FRUIT REGISTER.

GOOD JANUARY PEARS.

I HAVE this season found Passe Crassane in capital condition, and I have never had it so good. At Compton Basset the soil is of a heavy character, and unless the season was very hot, it was not of good quality. Another variety that is keeping well this year is Glout Morceau, which, when brought into warmth gradually, is very good eating. Knight's Monarch is another late variety which I have kept in good condition till the month of May. Ne Plus Meuris is just now beginning to colour, and will be a valuable fruit in the dessert till the end of March; and if grown liberally and thinned well, it is a Pear of passable flavour. *W. A. Cook.*

CHINESE CONIFERS.

PINUS ARMANDI.*—This is a five-leaved Pine of the Cembra section, with smooth bark, slender leaves, and oblong cones. It differs from P. koraiensis in the cones being broader in proportion to their length, and in the cone-scales not being reflexed at the tips. From P. parviflora it differs in its longer leaves, larger cones, and wingless seeds.

The branches are smooth, greyish in colour, the pale green leaves in tufts of five, with a very short deciduous sheath. Each leaf is about 14 to 15 cent. in length, three-sided, serrulate, triangular in section, with the resin canals median. The section of the central vascular cylinder or meristele is circular, and the fibro-vascular bundle is unbranched. The male flowers figured by Beissner are cylindric-oblong, each about 2 cent. long. The anther-scale is notched. The stalked cones are 10 to 11 cent. long, 4 to 5 cent. broad, oblong-obtuse, not tapering much either at the base or at the apex. The cone-scales increase in size gradually from the base to the middle of the cone, are slightly thickened at the tips, the upper exposed portions broadly ovate-acute, somewhat triangular, slightly pointed, and not reflexed. The seeds are wingless and edible. The whole cone has much the appearance of that of W. American P. flexilis.

The illustrations were drawn by Mr. Worthington Smith from specimens collected by Wilson in Yunnan (*sine numero*)! This Pine has been met with in Chensi, the Tsinling Mountains, *David!*

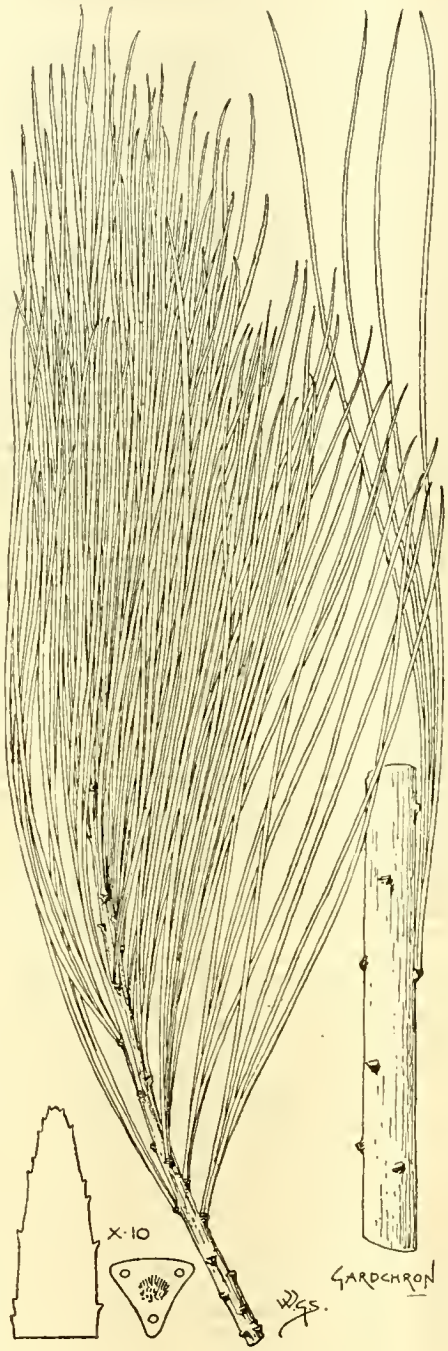


FIG. 30.—PINUS ARMANDI.
Shoot and foliage, real size; tip of leaf mag. 10 diam. Plan of leaf-section.

Szechuen, *Farges!* Yunnan, *Delavay!* but, so far as is at present known, does not occur in Japan.

Franchet suggests, and not without reason, that the cone figured as that of P. parviflora by Murray in *The Pines and Firs of Japan* (1863), p. 12, fig. 13, may really have belonged to the species now known as P. Armandi. Seedling plants are, we believe, in cultivation in Messrs. Veitch's nursery at Combe Wood. *M. T. M.*

* *Pinus Armandi*, Franchet, in *Nouvelles Archives du Museum*, 2 ser., t. viii., tab. 12 (1884); Beissner in *Nuov. Giorn. Bot. Ital.*, N.S., vol. iv., p. 184, tab. 5, fig. 2.

REPORT OF THE COMMITTEE ON FORESTRY.*

As might have been anticipated from the constitution of the Forestry Committee, a thoroughly practical though modest Report, as already alluded to in your columns, has been issued, any desire for more heroic measures being checked by the knowledge that after the South African war much State money is not available for the improvement of forestry. Ireland was not within the scope of the enquiry, as there is an independent Irish Agricultural Department not under Mr. Hanbury's influence, but Professor J. R. Campbell, one of the assistant secretaries of the Irish Agricultural Department, was a member of the committee. A separate inquiry will probably be held into Irish Forestry after effect has been given to the recommendations of the British Committee.

The report commences with a list of the witnesses, comprising the Earl of Selborne, Lord Glanusk, and Sir J. W. Ramsden, representing owners of woodlands; some of the best-known estate-managers, such as Mr. A. Vernon, President of the Surveyors' Institute; Mr. D. W. Drummond, agent to the Earl of Cawdor and to Sir James Drummond; Mr. A. Slater, land steward to His Majesty, at Osborne; Mr. W. B. Havelock, forester to the Earl of Yarborough; Mr. A. C. Forbes, forester to the Marquis of Bath, and Mr. A. Pitcaithley, forester to the Earl of Mansfield. The delegates of the Forestry Societies of Great Britain were Mr. J. Michie, from Balmoral; Mr. D. Robertson, forester to the Duke of Sutherland; and Mr. J. Davidson, land-agent to the Admiralty, and secretary to the English Arboricultural Society. Mr. S. Margerison and Mr. C. Hopton gave evidence on behalf of the Timber Trades Federation, and Mr. J. H. Croxford as a timber importer; Mr. A. D. Webster on behalf of the Royal Horticultural Society. Evidence was also given by three members of the committee, Dr. Schlich, Col. Bailey, and Dr. Somerville by a representative of the Post Office, Mr. M. F. Roberts, as regards the use of imported and home grown timber for telegraph poles; by Major P. G. Craigie, C.B., of the Board of Agriculture, regarding woodland statistics; by Mr. C. O. Minchin, of the Inland Revenue Board, regarding succession and estate duties; and by the English and Scottish Local Government Boards regarding local rates. Prof. H. Marshall Ward gave evidence for the University of Cambridge; and Mr. J. Parry, water engineer to the Liverpool Corporation, gave evidence as to the afforestation of catchment areas. The appendices with all this evidence are not yet published, but the selection of witnesses has been good, and they have afforded most valuable information to the Committee.

The Committee considers that the world is rapidly approaching a shortage, if not an actual dearth of Coniferous timber, which constitutes about 85 per cent. of the total British timber imports. There are in Britain about 21 million acres of uncultivated land, and the afforestation of suitable portions of this area is a matter of grave national concern; in order to increase the yield of home timber, and also as a means of providing remunerative labour to an increased rural population. At present, sheep-rearing in the highlands employs one man in 1,000 acres, at least ten men would be required were the same area under trees. The Committee therefore recommend that steps should be taken by the Government Department charged with the collection of land-statistics, to compile a statement of areas suitable for afforestation in Great Britain,

* Report of the Departmental Committee appointed by the Board of Agriculture on British Forestry. London: Printed for His Majesty's Stationery Office by Wyman & Sons. To be purchased through any bookseller, 2*d*.

and measures are recommended for more detail to be given in the statistics of existing woodlands.

As regards the preference now shown for foreign timbers, it is pointed out that properly grown Scots Pine and Spruce will yield as good material in Britain as abroad; this is certainly the case with Scots Pine, as is clearly shown in the appendix by Mr. Webber's recent book on Indian forests.

EDUCATION.

This desired improvement in methods of growing timber leads the way to education in forestry, and here the Committee have made some excellent suggestions. The most important of these are the setting aside of the Alice Holt Wood in Hampshire, and of an area to be purchased in Scotland for £50,000, to serve as demonstration areas for foresters and others. The student-foresters will work in the woods under a director, who will teach forestry; and an assistant, who will teach forest botany and entomology, as well as the constitution and properties of soils. Accommodation should be provided for the teachers, with rooms for the student-foresters. The cost of these practical forest training-grounds are estimated at £1,500 a year, and about £15,000 for buildings. It has already been asked, in the *Morning Post*, why an area in the Forest of Dean was not chosen, instead of in Hampshire? but the only suitable area in the Forest of Dean is the High Meadows Wood, and this the Commissioners of Woods and Forests could not make available, while they already receive forest-students in the Forest of Dean, whom one of the officers there is fully competent to teach.

Alice Holt, in Hampshire, contains both broad-leaved and coniferous trees, the soil varying from sand to a strong loam, and regular fellings can be made forthwith, so that it is very suitable for a demonstration area, and it is more accessible to the south of England than the Forest of Dean. Foresters and woodmen would be thus trained for three years, after appointment by County Council Technical Committees or otherwise.

The proposals for Lectureships in Forestry at Oxford and Cambridge, and that example plots of about 150 acres each be provided at Oxford, Cambridge, and Edinburgh, where there is already a Forestry Lecture-chair, are excellent. Besides these, regular lectures in forestry are recommended at all Agricultural Colleges receiving grants from the Board of Agriculture, and it is suggested that in counties such as Northamptonshire and Aberdeenshire, where there is much woodland, lecturers in forestry should be appointed by the County Councils, and scholarships offered if necessary to secure the attendance of woodmen.

The foundation of a State Forest School for the Empire at one of the Universities is also recommended, and it is suggested that this could readily be done at very small expense were the Indian Forestry Branch at Cooper's Hill to be transferred to a university. If the Indian Office, in the interests of the Empire, would consent to this transfer, a school of forestry comparable to one of the excellent continental forest schools could be at once established, which, besides teaching forestry to our landowners and land-agents, would supply India and our Colonies with foresters and lecturers for the forest schools that must eventually be established throughout the Empire, as well as furnish forestry lecturers for our agricultural colleges and county councils. Until this foundation for forestry education throughout the Empire has been laid, the Colonies will continue to look abroad for foresters, while no permanent improvement in forestry throughout the empire can be secured.

The report concludes with recommendations regarding the abolition of extraordinary rates levied for the carriage of timber on roads. These are highly unfair, as the plantations have paid rates for years while they were growing up, and before this extraordinary traffic occurs. Estate duties on woodlands also require readjusting, as under present conditions they frequently compel the realisation of immature timber. It was also suggested that young plantations should not be rated so long as they yield no return, though unfortunately no recommendation on this important point was made by the committee. A Bill is called for to afford adequate security against the destruction of plantations by fire from railway engines. The owner of plantations who keeps down ground-game should be compensated for damage done by his neighbours' ground-game.

As regards State loans for planting, the Committee prefer that good instruction in forestry should take the first place, and that the question of loans should stand over until the improvement in the condition of our woodlands becomes apparent.

Finally, the attention of Corporations should be drawn to the desirability of planting with trees the catchment areas of their water-supply; these blocks would eventually furnish demonstration areas for forestry instruction. It is interesting to learn that Birmingham is proposing to plant up 20,000 acres of the catchment area of their water-supply in Wales. *W. R. Fisher.*

FIG. 31.—PINUS ARMANDI: CONE OF REAL SIZE. COLLECTED BY MR. E. H. WILSON. (SEE P. 66.)

There are two points in Mr. Fisher's interesting and learned article which should perhaps receive a word of comment. In the first place, as he alludes to what is evidently a portion of the as yet unpublished evidence, we cannot be aware of the specific reasons which have led to the particular recommendations of detail made. In naming Alice Holt, the Report says that, while those woods cover less than the minimum area indicated as desirable, they could more easily be brought into working order, and made serviceable at an earlier date, than could the larger area of the Forest of Dean with High Meadow Woods. Mr. Fisher says that the Forest of Dean is unsuitable, though High Meadow Woods are suitable but could not be made available; and states that Alice Holt Woods contain coniferous trees as well as other timber, and have soil varying down to sand. One of our correspondents, who knows all the Crown forests of England, and who is specially well acquainted with Alice Holt and with Dean Forest, tells us that there is little sand in Alice Holt, and that in his opinion the greater portion of the soil of that Wood is unsuitable for the growth of good timber.

A large portion of Dean Forest is rendered unsuitable by coal-mining under the surface, but the area of Crown woods and Crown lands within reach of the houses belonging to the Crown situate in central portions of Dean Forest is so large as to give great resources of every kind. Alice Holt Woods have hitherto been let at a good rent for sporting purposes, and are full of rabbits. Dean Forest and a portion of the neighbouring woods are free from destructive game, and there are buildings available, at present unoccupied; whereas the Crown Lodge in Alice Holt is let, apparently (from the Woods and Forest accounts), for a long term.

The other point arising out of Mr. Fisher's article to which attention may be called, concerns the recommendation of the Committee that legislation is necessary to afford security against the destruction of plantations by fire from railway-engines. The strength of the railway interest in Parliament is so great that it is wise that we should not forget decisions on the existing law, which show that the case as it stands need not be given up without a fight. Attention was called in these columns on November 30, 1901, p. 395, to a case in which the County Court Judge of Cumberland gave a gentleman, whose plantation of young Scotch Fir had been set on fire by sparks from an engine on the North Eastern line, his claim. The Company, who were represented by counsel, stated that they should appeal, and the judge expressed his view that this was only natural, considering the great importance of his decision. A meeting of the directors was called upon the subject, and, after most careful consideration, the Company decided not to appeal, and the decision stands. The circumstances of the case were such that, although it is necessary to show negligence in order to recover, there is no case in which recovery ought to take place which would not be met by the principle laid down. For example, in all cases where the incline is such as to make puffing usual in leaving a station, there would be

continuing negligence. There being no chance that Parliament will go further, it is perhaps more desirable to cause proprietors of plantations to be informed of their position under the present law, than to induce them to expect a fresh Parliamentary remedy.

APPLE-GROWING FOR PROFIT.*

THE object of this short paper is to direct attention to what has proved to be a profitable industry in Ireland when careful attention has been given to it. Much has been written in recent years about fruit-growing in the British Isles, but a large proportion of both writings and lectures on this subject has been misleading and illusory; roseate pictures have been painted of enormous profits, certain crops, unfailing markets—all attained with little labour; but it may be taken for certain that fruit-growing will pay only when it is thoughtfully undertaken and carefully carried out. Under these conditions, it will pay—and pay well. For certain classes of fruit there is a continuous and steady demand, especially for Apples; yet, strange to say, in Ireland, whilst the sale of American Apples is very large, and steadily increasing, one of the most difficult things to get is a good home-grown Apple, either for eating, or for cooking purposes. This is not due to any fault of soil or climate, for as good Apples, especially cooking Apples, are grown in Ireland, as in any country in the whole world. One of the leading market growers in England recently remarked to me, "I can see no reason why Ireland should not grow first-rate Apples; in fact, I know it can be done;" and this remark came from a man who knows Ireland well. Many years ago he explored Ireland as a fruit-growing country, but relinquished the enterprise owing to the then imperfect means of conveyance, and owing to market difficulties. Since then much has been done to improve these matters, and the supply of fruit has also largely increased; in fact, from November to January, inclusive, a first-rate supply of good imported eating Apples can generally be obtained. A very general opinion prevails that American Apples are much superior to home-grown Apples; but this is far from being the case, and there is plenty of room for the home-grown Apple. I do not recommend growing eating Apples which come in season at a time when there is a large supply of attractive-looking imported fruit; what I strongly urge is, the cultivation of early season eating Apples, and good quality cooking Apples for all seasons.

EATING APPLES.

First, as to eating Apples. During the holiday season—July, August, and September, especially the two latter months, when bush fruit and Strawberries are over, there is a steady demand for good eating Apples, and a very limited supply. The poor green uninviting-looking rubbish that one sees displayed in windows and on stalls, could easily be replaced with sound attractive fruit, pleasant to look at, and pleasant to eat. There is a good demand for this class of Apple, and good prices are attainable. For instance, during September, Cox's Orange Pippin sold from the tree, in London fetched from 11s. to 13s. per bushel of 42 lb., or nearly 1*d.* per Apple. Devonshire Quarrenden, Worcestershire Pearmain, and Washington Apples were selling at 7*s.* to 11s. per bushel, which must be regarded as highly remunerativo prices. It is important for the grower to note that these early Apples can be sold direct from the tree, without the expense and trouble of storing. The question arises—have we Apples suitable for our Irish climate which will ripen early? The following list of ten varieties may be relied on:—Gladstone (July), Beauty of Bath (July and August), Irish Peach-Apple (August), Devonshire Quarrenden (August), James Grieve (September), Lady Sudeley (September), Kerry Pippin (September), Worcester Pearmain (September), American Mother (September), Cox's Orange (October). These are well proved varieties, prolific, and reliable. The Duchess of Oldenburg might be included in this list, but as the flavour is rather acid for some tastes, it is better to reserve it for the list of cooking Apples, and to include Cox's Orange Pippin, which, although rather late, is probably the best eating Apple grown, and the Apple which commands the highest price. If old decrepit trees, which abound in most farm gardens, were cut down and burnt, and the ten varieties named planted, a great improvement would be made in Irish fruit growing.

COOKING APPLES.

Secondly, as regards cooking Apples. The home grower of good cooking Apples has practically no foreign competition to contend against, and thus starts with a distinct advantage, as compared with the grower of eating Apples. It is well known that many Apples which are good for eating are comparatively worthless for cooking purposes, and this is especially the case with the American Apples. Yet strange to say, the supply of good cooking Apples is far below the demand; in fact, both early in the season—August and September—and late in the season, from the end of November on, it is extremely difficult to buy a good cooking Apple. It may be thought that the scarcity is owing to poor prices; but this is not the case. Good cooking Apples, i.e., good large sound fruit of good varieties fetch more per Apple than eating Apples. They readily sell at 5*s.* to 9*s.* per bushel, and naturally there are fewer of these large Apples to the bushel than of the smaller eating Apples. The greater part of the cooking Apples grown in Ireland are sold in England and Scotland, and owing to the good prices given, much more attention is now given to them, both as to the varieties grown, and as to skilful cultivation. If they are now in many districts a remunerative crop, they could be made much more so if attention were directed to growing and storing the good late keeping varieties. It is in this branch of fruit growing that I have most faith for the future, and I strongly recommend it to all practical men who intend planting fruit-trees for profit. There are, no doubt, gentlemen present who are versed in market matters, wholesale and retail, who could give some startling facts as to the prices obtainable from Christmas to April for good cooking Apples. The list of varieties of cooking Apples is much larger than that of eating Apples, and many more varieties than should be grown are to be found in catalogues, and are recommended by practical growers. It must, however, be borne in mind that each variety will not grow equally well in every soil, and a man may with perfect honesty and good faith recommend as the best Apple one which may be comparatively useless when planted [in another situation]. As a guide as to what to plant we must look to the market, in order to see what sells well, and to the market garden and large orchard, to see what is being planted. I have been through some of the best-managed orchards in Kent, Surrey, and Essex. I have interviewed growers and salesmen, and at the present moment the following ten varieties are those which I most recommend for planting, in order to secure a profitable crop:—Duchess of Oldenburg (August), Early Victoria (September), Lord Grosvenor (September and October), Stirling Castle, or Grenadier, or The Queen (October), Wellington (November), Lord Derby (November), Bramley's Seedling (November to May), Bismarck (November to May), Lane's Prince Albert (November to May), Newton Wonder (November to May). In omitting several old favourite and well-known Apples, such as Blenheim Orange, Warner's King, Lord Suffield, &c., I have been guided by what I have seen, and by my own limited experience. I do not say that each of the ten varieties mentioned will do well when planted, but the majority will do so, and a selection can be made in a few years; in fact, it will make itself.

Having decided on what to plant, the grower has to consider (1) where, (2) when, and (3) how to plant.

(1) The question of soil is an all-important one. Being gross feeders, Apples naturally delight in a deep rich loam; but this is not everywhere available. Growers must remember that Apples, although not very fastidious, give infinitely better results in a good position, than when stuck away in any corner; therefore, they should be given the best position available, with good exposure to sun, and shelter from winds when possible. It is a great mistake to plant close to large trees, as the young plantation is robbed of sun, air, and nourishment; but if planted on an exposed site growth is very slow, and good heavy fruit is blown down before reaching maturity. If no shelter is to be had, hedges should be planted. The Damson will be found to be an excellent hedge plant. It makes a thick close hedge, and a paying crop of fruit can be got from the hedges.

(2) As regards the time of planting, October is the best month. If young trees are planted in October they get settled in the soil before winter; the soil being still warm, new roots are rapidly formed, and the wounds heal up quickly. Further, far better plants can be had in October than later on, when stocks have been reduced and the best trees sold.

(3) The question of how to plant requires consideration. Is the plantation to be a grass orchard, or a general fruit plantation? If a grass orchard the permanent trees must be standards or half-standards on the Crab stock. They should be planted in rows 24 feet apart, and between each tree a dwarf bush tree on the Paradise stock should be planted. These dwarfs should be moved, or cut out, about the tenth year, before which time they will have yielded a handsome profit. For several reasons, I am strongly opposed to meadowing orchard ground. I believe this practice has a most injurious effect on the trees, and the price got for hay is more than lost in the crop of Apples. It is much better to graze sheep; or small plantations may, with excellent results, be used as a "run" for poultry.

If a general fruit plantation is to be made, only dwarf bushes on the Paradise stock should be planted. These should be 12 feet apart every way, and if labour is scarce an extra tree may be planted between each four trees, this extra tree to be removed as the permanent trees grow. The advantages of dwarf bushes are that they come earlier into bearing, the fruit is easier to gather, and the fruit is less liable to be blown down. Between the rows bush fruit or Strawberries may be grown.

For bush fruit I recommend Gooseberries and Black Currants. The following are the best Gooseberries for general cultivation:—Crown Bob, Keepsake, Langley Green, Lancashire Lad, Whinham's Industry.

The best Black Currants are Baldwin and Victoria. It is well to draw attention to the demand there has been in recent years for Black Currants—a demand which has far exceeded the supply. This year, both in England and in Ireland, 40*s.* per cwt. has been the regular price for good Black Currants.

A word may usefully be said as to the treatment of the trees. The branches should be shortened back before planting, always cutting to an outside eye; and the roots, where broken or injured, may also be cut back to where the wood

* Paper read at the Fruit Conference, Cork, on October 17, 1902, by Mr. F. W. Moore, A.L.S.

is sound. Growers should be careful not to plant too deeply, and should spread the roots out in every direction. Manure should never be given to young trees. Manure will not be necessary until the trees begin to carry crops; then regular and liberal manuring will be required. The second season's pruning will consist in shortening back the gross shoots, removing ill-placed or superfluous shoots, and ensuring that the centre of the trees is kept open. Summer pruning is a debatable question, and although I advocate it, I believe the extent to which it is to be carried out is largely dependent on soil and situation. I think it is advisable to stop the shoots in July, especially in young trees. In fruiting trees very little pruning is necessary; the fruit has a restraining influence on growth, and more leaves are required to provide material for forming fruit.

All these details may have been carefully attended to, and yet the results may be unsatisfactory, although there may be a heavy crop, if special care is not given to gathering and marketing. Careless gathering, and, worse than careless, dishonest, marketing can easily turn what should be a handsome profit into a dead loss. Apples must be very carefully handled; each fruit should be picked separately and placed in a tray or basket, to be carried to the packing shed or store. They should never be shaken off the trees or thrown into the receptacle. They are easily bruised and disfigured, the bruises turn black, and rot quickly sets in, and bruised and disfigured fruit, of course, commands but a poor price.

(To be continued.)

ECONOMIC BOTANY.

(*Concluded from p.* 38.)

Danger of Ignoring the Study of Vegetable Economics. — Thus, as I said before, this country is ignoring the study of vegetable economics, just as twenty years ago it ignored the scientific study of agriculture. We shall wait till a check in our commerce, probably caused by a fall in prices of our own products (a natural consequence of technically imperfect methods of production, preparation, or collection), brings us face to face with the fact that we are suffering for our ignorance. Then will follow the usual panic, and the usual forcing of square men into round holes, for which, by a little timely rounding off by the necessary education, they might have been gradually and efficiently prepared. Or, worse still, we may resort to the ignoble refuge of wholesale importation of experts from abroad. I propose no heroic measures. A slight modification of our current methods should meet the requirements; but such modification will require time for its proper development.

Under the revival of the study of botany which has taken place in this country during the last quarter of a century, the leeway of a former generation has been made up. At many universities more men are now duly qualified by their scientific training to pass into the professional ranks as pure botanists than there are places for them to fill. There is, in fact, a block in promotion. This should be the opportunity for strengthening the applied study of the science. A very slight encouragement from Government, or otherwise, would lead to the addition of an extended course of vegetable economics to the ordinary courses of some of our universities or technical colleges; especially this would be suitable in such commercial centres as Glasgow, Liverpool, Birmingham, and Belfast, in which there is less opportunity for the development of agriculture or forestry. This would lead to the production of a body of experts, trained up to a certain point which their degree or diploma would indicate, and such experts the Empire will be certain to require.

It was in the full conviction of the importance of this that, on a recent occasion, when an opportunity was given me of stating the immediate needs of my own department in Glasgow, I suggested as the most pressing need the appointment of a lecturer on vegetable economics, who should also be the keeper of the botanical museum. A course such as he could give, added to those of physics, chemistry, and botany, together with certain optional subjects, should form a curriculum well worthy of a degree of B.Sc., with a special diploma in vegetable economics. So far nothing has resulted.

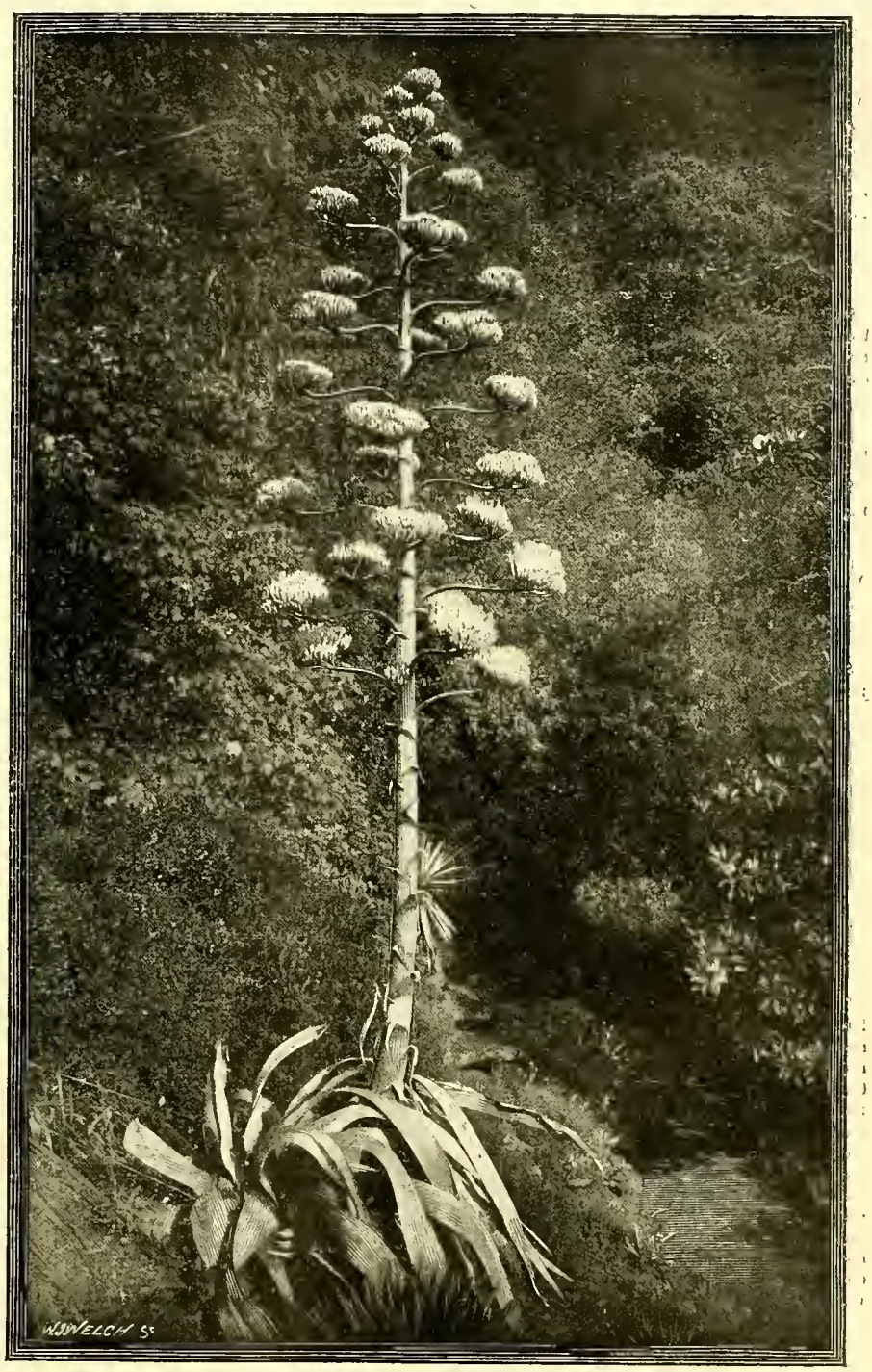


Fig. 32.—Agave americana, 25 feet high, in the gardens of Brookhill, Kingswear, the residence of R. F. Wilkins, Esq.
(*Photographed by Mr. Fitzherbert.*)

FLORISTS' FLOWERS.

American Chrysanthemum Judging.

I beg to enclose the scales of points for the judging of Chrysanthemums, arranged by the Chrysanthemum Society of America, thinking it will interest your readers. You will observe the difference between this and the English method. Cut blooms are exhibited in vases with long stems, so that the foliage and stem counts as well as the flower, and when six are exhibited in a vase together they are certainly

seen to advantage. Usually each variety is exhibited in a separate vase, excepting in one or two classes. The following are the scales of points:—

Scale A.—For bush plants and standards, single specimens, or any number up to six, in an exhibition where the class under consideration does not form the chief feature in the Exhibition Hall—

Equality of size and form of plant	40
Excellence of bloom	35
Foliage	25
Total	100

Scale B.—For bush plants, exhibits of more than six, or for any number of specimen plants in an exhibition where the class under consideration forms the chief feature in the Exhibition Hall—

Excellence of bloom	40
Equality of size and form of plant	35
Foliage	25
Total	100

Scale C.—For plants grown on single stems. A height of not more than 3 feet is recommended for plants in this class, and pots of not more than 6 inches in diameter—

Excellence of bloom	40
Compact and sturdy growth	35
Foliage	25
Total	100

Scale D.—For specimen blooms for commercial purposes—

Colour	25
Form	25
Fulness	15
Size	15
Stem and foliage	10
Substance	10
Total	100

Scale E.—For specimen blooms for exhibition purposes—

Distinctiveness	25
Colour	15
Form	15
Size	15
Stem	10
Foliage	10
Fulness	10
Total	100

J. H. Blackman, Bryn Mawr, Pa., U.S.A.

CULTURAL MEMORANDA.

CANNAS.

THE seed of the Canna is extremely hard, and takes a long time to germinate, so that an early start should be made in getting the seed prepared and sown. I have repeatedly soaked the seeds of Cannas twelve and more hours previous to sowing them, and after sowing stood the pans in a nice warmth, but the young seedlings have kept coming through the soil at intervals for some weeks. As the young plants appear, they should be transferred to small pots and kept growing gently, and when large enough, re-potting should not be neglected. Cannas should be afforded a rich loamy compost, and plenty of manure-water during the season of growth. *H. Markham, Wrotham Park, Barnet.*

PUBLICATIONS RECEIVED.—*The Transactions of the Yorkshire Naturalists' Union.* Part 26. Contents: Yorkshire Macro-Lepidoptera in 1897, by William Hewett; Report of Yorkshire Botany for 1890, Phanerogamia, by C. P. Hobkirk and P. F. Lee; Report on Yorkshire Botany for 1894, by A. H. Pawsou; Report on the Bryological Flora of Yorkshire for 1897, by T. J. Marshall; also notes on Meteorology and Reports.—Also the above Transactions, No. 27: *The Alga Flora of Yorkshire*, a complete account of the known fresh-water Algæ of the county, by W. West and G. S. West.—*Proceedings and Journal of the Agricultural and Horticultural Society of India*, July-September, 1902. This mentions trials with infused Tea-leaves as manure, which so far have produced but little result, unless in the colours of the flowers of a few Cannas. The pamphlet includes a mention and plate of Phalænopsis Schilleriana.

The Week's Work.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Rhubarb.—This is a suitable season for forming plantations. The land should have been manured and deeply trenched in the autumn, and the beds formed in a sunny yet sheltered part of the garden. Let the roots be so divided that a bud is preserved on each piece, and plant the divisions in lines 3 to 5 feet apart each way, according to the strength of the variety. Place the roots so that the bud is about an inch below the surface of the ground; apply a mulch, and leave the whole of the first season's growth undisturbed, but cut away all flower-heads. The Sutton, and Daw's Champion are excellent early varieties; Myatt's Victoria, although an old variety, is still one of the best. The Champagne, for its good flavour, should not be forgotten. Successional batches of Rhubarb should be brought into the Mushroom-house in accordance with the needs of the family.

Jerusalem Artichokes.—Any tubers still remaining in the ground should now be trenched out, being careful to remove every scrap of root. The useable tubers may be stored in sand or coal-ashes out-of-doors, and the middle-sized and best-shaped ones put on one side as sets. If first-class produce is desired, the soil and treatment recommended for Rhubarb are suitable, and the sets planted 6 inches deep and 1 foot apart, and the rows 3 feet apart.

Winter Spinach.—In dry weather, when the soil is not sticky, stir the ground with a hoe, draw a little soil against the stems, applying a dressing of soot before the hoeing is begun. Seed may be sown on a south border in shallow drills drawn at 12 inches apart, and the produce from this sowing will come in usefully when the autumn-sown crop is getting short. The Victoria Round is one of the best Spinaches.

Seasonable Hints.—Broccoli with heads formed or forming will need protection, which is best afforded by lifting them with roots intact, and heeling them-in, in soil in a cold turfen or brick pit, &c. Apply linings of warm manure and tree-leaves to hot-beds. The lights must be covered up every night, but in such a manner that the fumes are not conducted through the air-opening into the frames. Put a number of sets of early Potatos in shallow boxes, and place them in a light house or pit in warmth of about 50°; the sets for planting out-of-doors may likewise be placed thinly in a light, cool, frost-proof place.

Carrots and Parsnips.—Any roots left in the ground should be lifted and stored on the north side of a wall, with a quantity of sand or ashes between the different layers; sheets of corrugated iron may be used to throw off the rain.

FRUITS UNDER GLASS.

By T. H. C.

Cucumbers.—When setting out the plants, turn them carefully out of the pots, and put one into each hillock of soil. The plants will have a portion of bare stem between the cotyledons and the surface of the soil in the pots, and this should have some soil gently pressed against it close up to the seed-leaves, the result being the emission of vigorous roots, much to the benefit of the plants. Place a stake to each plant, and tie-in the bine as growth proceeds. Very little water will be required before the roots take possession of the new soil, and then it should be always applied in a tepid state. Maintain a night temperature of 65°, except in severe weather, when a few degrees less would be better, rather than to heat the hot-water pipes excessively. The day temperature may range from 5° to 10° higher, and even more with sunshine will be beneficial, with plenty of humidity in the air always. Our old-bearing plants are now growing freely, and showing plenty of fruits. Encourage root action by an occasional sprinkling of a fertiliser on the surface of the soil, and immediately apply warm water. When the roots appear at the surface, top dress as previously advised; remove decaying leaves and some of the barren bine, encouraging young growths in its place. Crop lightly, remove entirely all male flowers and tendrils, and where an extension of growth is not required, stop the shoots at a leaf beyond a fruit. Look out for red-spider, and if the foliage is affected, syringe with "Spideracide," diluted according to the directions sent out with this special preparation, and keep the foliage clear of red-spider afterwards by forcible syringing with clean tepid water. If aphides give trouble, employ XL-All. Syringe the plants once or twice daily, according to the state of the weather; and maintain temperature and atmosphere as advised for young plants.

Tomatos.—I know of no plant that may be grown in such a diversity of ways, and if intelligently managed, always with success. It will accommodate itself to the shallowest of greenhouse shelves with 3 or 4 inches of soil for a rooting medium, or to the house of the market man covers a part of the ordinary garden soil; the only preparation it receives being a liberal dressing of farmyard-manure incorporated with the top spit. This forms the border into which the young plants are planted out in rows, and trained up strings to the roof, where they usually fruit well. For the earliest crop I would recommend growing the plants in 10-inch flower-pots. The house intended for these, and especially if Tomatos were previously grown in it, should be thoroughly cleansed in every part, and if the least sign of disease appeared in the plants last year let the house be disinfested with burning sulphur, keeping the house air-tight. When doing this remove every plant from the adjoining houses, and stop up every crevice. Procure the necessary number of 10-inch pots, and after well crocking them, fill them to the extent of three-quarters with a compost consisting of three parts fresh turfy loam and one part leaf-mould, with a small quantity of charred garden refuse, mortar-rubble, and a sprinkling of Veltha Powder, the latter as a disease preventative and slight fertiliser. Into this put the young plants, ramming the soil firmly about the roots. At subsequent top-dressings the pots may be filled up to within an inch and a half of the top. Place them close to the roof-glass; maintain a moderately dry atmosphere, and a temperature of 55° to 60°, rising a few degrees higher with sunshine; afford air when the weather permits. If not convenient to put into large pots forthwith, shift into 5-inch pots, and keep the plants close to the roof-glass, and either plant out in a bed, or shift into pots when convenient.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Calanthes.—The value of the deciduous Calanthes as flowering plants is well known, and some of them may be met with in most large gardens where Orchids generally are not much grown. These plants are now passing out of flower, and as soon as the flower-spikes are removed, water at the roots should not be afforded, and the pseudo-bulbs should be put away to rest till the season of growth comes round. They should be left in the flower-pots, unless exigencies of space forbid, when they may be turned out of the pots and stored in boxes, covering the roots with dry sand, the boxes being placed on a shelf at the warmer part of the Cattleya-house where the temperature is never lower than 58°, and sunshine can reach them most of the day. Resting Calanthes in cool or damp quarters is responsible for the disease known as "spot."

Pleiones lagenaria and P. maculata.—The proper time for repotting Pleiones is immediately after the plants have ceased to flower, i.e., in November, more especially if they are kept in the intermediate-house—the one best suited to their needs. When grown in a cool-house, the plants flower later. Any plant which may require repotting, should receive attention forthwith. A suitable mixture is one consisting of turfy-peat, loam, and leaf-soil, in equal proportions, and adding some coarse silver-sand. Shake the pseudo-bulbs out of the soil, remove dead roots, but leave as many good roots as will steady them in the soil, and let each bulb stand at about an inch apart. Fill the pots or pans to about half their depth with clean crocks, make the compost moderately firm, afford a surfacing between the pseudo bulbs

of clean sphagnum, and when the potting is finished the pseudo-bulbs should stand about half out of the compost. Place in a light position in the intermediate-house, and apply water sparingly for some time.

Miltonias. — Examine the late summer and autumn-flowering species and hybrids, viz., M. spectabilis, and its varieties Moreliana and bicolor, M. candida, M. Clowesii, M. Regnelli and their hybrids, M. Binotii, M. Bluntii, M. leuco-glossa, and M. Peetersiana. These plants are making new growth, and any that require to be repotted, or which have become bare in the centre, should be broken up, the dead roots and useless pseudo-bulbs removed, and be afforded fresh material. A "leaf-soil" compost is suitable, used in a rough state, to the extent of two-thirds, all the finer particles being sifted out. Oak-leaves or the Belgian leaf-soil is the best, to which may be added one-third turfy-peat, chopped sphagnum a small quantity, and a sprinkling of coarse silver sand; cover the bottom of the pots with a 1-inch layer of clean crocks, then a layer of sphagnum, pot moderately firmly, keep the base of the plants on a level with the edge of the pot, and finish off with a layer of fresh, clean sphagnum, which clip over smoothly. Water must be applied with discretion, but the pots and stages may be often damped. Providing the potting materials are in a moist state when used, no water will be needed for some time, that is, till the roots have seized upon the compost. M. vexillaria and its varieties being now in full growth, water may be applied freely to them. I prefer to pot these plants when growth recommences in the autumn; but plants not attended to at that time, which are in a bad condition as regards the compost, may be attended to now, placing these in a shady part of the Cattleya-house when sunshine gets stronger. Thrips are very partial to Miltonias, and if not destroyed they soon disfigure the leaves. One of the best insecticides to use against this pest is XL-All, which should be used on their first appearance on the plants.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Fuchsias.—Old plants started in mild warmth at the end of the year, as advised, will have pushed shoots fit to form cuttings, which need not be longer than 2 inches; and if such can be taken with a bit of the old wood attached, and dibbled into pots 4 inches in diameter, filled with sandy soil, they will quickly form roots if placed in slight bottom-heat, kept close, and shaded from the sun. As soon as rooted, pot them off singly, and stand near the roof-glass in a temperature of 55° to 60°, syringing them overhead once or twice daily, and lightly fumigating in the evening should aphis appear on the plants. The general stock of Fuchsias should have the shoots pruned back to a prominent bud, and be placed in a light position in warmth of about 50°. When fairly started into growth, shake off the exhausted soil, trim the roots a bit, and repot into pots of the same or smaller sizes. No water should be afforded for a few days, except by means of a syringe, but do not let them suffer from lack of moisture when in growth. Plants struck last September or October should be kept in a growing state, and be repotted when necessary. These make good pyramids if the side shoots are duly pinched, flowering early in July. The compost used may consist of loam two-quarters, dried cow-manure or fresh horse-droppings one-quarter, and one of half-decayed leaf-soil, with coarse river sand one-quarter. Fuchsias grown on pillars, rafters, and glass partitions, should have the shoots thinned, and the lateral shoots spurred back to two buds beyond the point of the last year's pruning.

Pelargoniums (Show).—Assuming that these had their final potting back in December, growth will soon become more active, and the shoots stand in need of being tied out, so as to give each sufficient space in which to develop; this is best done by placing a piece of wire around the pot just below the rim, securing the shoots with raffia to the wire, and as growth advances a few neat stakes may be placed in the pots, to which the shoots should be tied. Do no further pinching of the shoots unless late flowering is required, and keep the plants on a shelf or near to the glass, admitting air plentifully on mild days, but avoiding cold draughts. Fumigate the plants once in alternate weeks. Zonals for producing flowers next autumn and early winter need propagating early in the year, and where there are plants of no decorative merit, these will afford cuttings of the right sort, that is firm and stocky. Cut these close up to a joint, insert them singly in thumbs, and place on a shelf in a not too warm house; afford but little moisture at the root or overhead. When rooted, pot off in sandy loam, with a small quantity of manure added; pot firmly, and grow on in a temperature of 50°. By this means fine plants may be obtained by September.

Hydrangea Hortensia.—A few plants well established in pots may be placed in a forcing-house having a warmth of 50°, standing them on a shelf near the glass. When growth commences, apply manure-water once or twice a week. The white flowered variety, Thomas Hogg, is very good for early work.

Euphorbia pulcherrima.—As these plants pass out of flower, keep them dry at the root, and place them in a fairly light position, where the temperature does not fall much below 40° during the coldest night. A mean temperature of 45° is suitable.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

The Wild Garden.—In that portion of the pleasure garden in which the natural or wild style of gardening is carried out, trouble is often occasioned by the gardener endeavouring to combine it with the tidyness characteristic of a well-ordered garden. Many of the plants used in the wild garden flower in the spring, and some of them will be in growth at the present date, the winter Aconite and the Snowdrop for example, and some of the Narcissus, the Crocuses, and many others will be showing above the ground; and Anemones, such as appenina and blanda will show signs of growth. Such being the case, it is a difficult matter to clear up the tree-leaves which may have got blown among the plants. Undoubtedly, it is best to leave them alone, or to cover them with a thin sprinkling of good soil. But as it is not practicable always to leave them thus, their removal should be entrusted to someone who knows every inch of the ground and what it contains, so that the least possible injury may be caused. Wild gardening is generally carried on where there is a considerable amount of shelter from trees or shrubs, so that the ground is generally workable when that in more open parts of the garden is frozen hard, and in the case of further extension of planting this sort of gardening preparation may go on, leaving nothing but the actual planting to be carried out at the right time.

Out-of-doors Chrysanthemums.—At this place it is found advisable to pot-up before winter as many of these plants as will supply the required number of cuttings; and young plants are much to be preferred to old ones. Such lifted plants will now furnish numbers of cuttings, which should be dibbled thickly into boxes of sandy soil, in which they will soon take root if placed in a pit and kept fairly close, and treated similarly to the ordinary stock in pots.

Sweet Peas.—Where flowers are desired at an early date, and the soil is cold and heavy, seeds should be sown at this date in 5-inch pots, six seeds in a pot, and placed in a cold frame, where they may remain until planted. Refuse soil from the potting-bench is suitable for filling the pots, and a few small lumps of turf should be placed over the crocks. I have found it best to raise even the main sowing of the named Sweet Peas in pots, and if they are carefully planted when about 6 inches high, the flowering season is not at all shortened, nor is growth checked.

Deciduous Flowering Shrubs.—There is still time to plant these and afford them a good start, provided the work is properly carried out, the soil is not in a frozen or sodden state, and a mulch of manure or tree-leaves be placed over the roots. Most flowering shrubs require pruning, either to restrict growth or give a natural and pleasing form, some as soon as they have flowered; but as this is usually a busy time, it may be carried out at this season. The chief point is to treat each species according to its natural habit, and in such a manner that the current year's flowering-wood is not removed. For example, most of the shrubby Spiræas will bear pretty hard cutting, and will still flower freely; while the same treatment would spoil for a year at least the Pyruses, Weigelas, and Viburnums, which flower on the previous year's growth.

Penzance Sweet Briars.—These make a beautiful display in the early summer months, and where there is ample space the plants should be allowed to grow away in an almost wild condition, though it may be necessary to tie in, or down, some of the long shoots made the previous summer. When grown as hedges they should be kept neater, and have many of their shoots shortened. Briars are the better for a good soil and manure about the roots, and should be well mulched in the spring.

Ground Work.—Any alterations that may be contemplated should be pushed forward rapidly. Box-edgings may be relaid when there is no frost. Sometimes a walk across lawn-grass has to be made, but there are objections sometimes to having such a walk much in sight; but by sinking the walk a few inches below the general level, and letting the turf slope down to it on either side, this deffect is considerably or entirely obviated, and if the walk is narrow, it is quite hidden from some points of view. When a walk is of small width, a raised centre is not necessary, but is rather an undesirable feature; and if such a walk is well made and properly trapped, the surface water will not collect on it.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Medlars.—Standard trees may, if it be found necessary, have the branches thinned, and intercrossing ones removed, so as to produce an evenly balanced head. If mussel-scale infests the bark, use the alkali wash next month. Young trees may still be planted. The Dutch Medlar has the larger fruit, but the Nottingham is much the better as regards flavour.

The Quince grows and fruits well in damp soils and situations, and may advantageously be planted by the margins of streams or ponds. The branches of bearing trees should be well thinned, and much of the spray removed, so as to allow the sun to reach the fruit—an important point if fine fruit is required. The Pear-shaped variety is the best for general use.

Cobnuts and Filberts.—If pruning has not been performed, let it be taken in hand forthwith. The usual form of bush is basin-shaped, with a clear stem of 2 feet in height. In pruning, remove all of the young shoots of last year's growth not required to form new branches, or to replace those that have become barren. Care should be taken to leave some shoots carrying male flowers (catkins) for fertilising the flowers later on. Pruning being finished, clear away all weeds, and afford the plantation a dressing of rotten hotbed-manure or woollen rags, and lightly point it over with a fork.

Strawberries.—Where from lack of space, &c., Strawberries could not be planted last August or September, and the plants have been wintered in small pots, let the ground intended for them be now trenched, but leave the planting till the end of the month of March. Plenty of farmyard or other manure should be placed at the bottom of the trenches, and in the case of heavy soils the surface should be left rough, so as to enable frost and air to penetrate to a good depth.

Hints on Work in General.—Where advantage has been taken of the recent frosts to wheel manure on to the fruit quarters, the work of digging can be carried on without hindrance. In gardens where the Gooseberry sawfly-caterpillar caused trouble last spring, remove the soil from beneath the bushes and char it, or place on the smother-fire, and replacing it with fresh soil from another part of the garden. Examine the Gooseberry and Currant cuttings inserted in the autumn, making firm those which have been lifted by the frost. Scions for grafts laid in on north borders should also have the soil pressed firmly about them.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR FEBRUARY.

TUESDAY,	FEB. 3	National Auricula Society (Midland Section) Meet. at Hôtel Métropole, Birmingham.
THURSDAY,	FEB. 5	Linnean Society's Meeting (Botany).
SATURDAY,	FEB. 7	Société Française d'Hort. de Londres meeting.
MONDAY,	FEB. 9	Surveyors' Institute meeting; United Hort. Ben. and Prov. Soc. Com. meeting.
TUESDAY,	FEB. 10	Royal Hort. Soc. Coms. meet; also Ann. Meeting of Fellows.
FRIDAY,	FEB. 13	Roy. Gardeners' Orphan Fund, Ann. Meet. at Cannon Street Hotel.
SATURDAY,	FEB. 14	Royal Botanic Soc. meeting.
THURSDAY,	FEB. 19	Linnean Society meeting.
FRIDAY,	FEB. 20	Surveyors' Inst., Ann. Dinner.
MONDAY,	FEB. 23	Surveyors' Institute meeting.
TUESDAY,	FEB. 24	Royal Hort. Soc. Coms. meet. Lecture on "Some Unappreciated Plants."
WEDNESDAY,	FEB. 25	Royal Botanic Society meet.
THURSDAY,	FEB. 26	Irish Gardeners' Assoc. meet.

SALES FOR THE WEEK.

MONDAY and FRIDAY, FEBRUARY 2 and 6—
Perennials, Herbaceous Plants, Azaleas, Roses, &c., at 67 and 68, Cheapside, by Protheroe & Morris, at 12.

MONDAY, FEBRUARY 2—
Clearance Sale of Glass Erections and Nursery Stock, at Putney Nurseries, Clarendon and Dryburgh Roads, Putney, by Protheroe & Morris, at 12.

TUESDAY, FEBRUARY 3—
Clearance Sale of 100,000 Fruit Trees, at Sipson, Yiewsley, R.S O., Middlesex, by order of Messrs. J. Smith & Son, by Protheroe & Morris, at 11.—Sale of Japanese Liliums, Azaleas, Begonias, Herbaceous Plants, Fruit Trees, Lily of the Valley, &c., by Pollexfen & Co., at their Rooms, Pilgrim St., E.C.

WEDNESDAY, FEBRUARY 4—
Azaleas, Roses, Perennials, Herbaceous Plants, Bulbs, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Roses, Rhododendrons, Azaleas, Lilacs, Hardy Flowering Perennials, Lily of the Valley, &c., by Mr. Stevens, at his Rooms, 38, King Street, Covent Garden, W.C., at 12.30.

FRIDAY, FEBRUARY 6—
Sale of Dendrobiums, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —39·3.

ACTUAL TEMPERATURES:—
LONDON.—*January* 28 (6 P.M.): Max. 50°; Min. 43°.
January 29 (Noon): Fine, mild; 47°.
PROVINCES.—*January* 28 (6 P.M.): Max. 48°, S.W. Ireland; Min. 39°, N.E. Scotland.

"The Orchid Review."

WE are reminded by the issue of the January number of this periodical that this number begins the eleventh volume. That fact alone shows how useful the periodical has become to the orchidist. Many lovers of these plants will remember the consternation caused by the death of Prof. REICHENBACH, who took up LINDLEY'S work, and, so far as cultivated Orchids were concerned, made these pages the vehicle of his communications. Many too will remember the disgust universally felt at the Professor's testamentary dispositions. For a time it was feared that the progress of Orchid knowledge would be seriously affected by the locking up for twenty-five years of the specimens and memoranda made by the Professor. But somehow, as in the case of the terrible curse pronounced at Reims and told in the *Ingoldsby Legends*, nobody appears to be one penny the worse for the strange dispositions of the Hamburg Professor. One reason for this fortunate state of things may fairly be attributed to the *Orchid Review*. Month after month, orchidists have had placed before them the newest and most trustworthy information concerning Orchids. Difficult and entangled questions relating to nomenclature and synonymy have received attention. The raising of hybrids has also been carried on to an extraordinary extent, and, but for the *Review*, the confusion, great as it is, would have been much greater. The specialisation and division of labour, which are so marked features of the times, necessarily bring with them the need for a special journal. Specialisation in botany is, however, as it is in everything else, only advantageous when a thorough grounding in general botany has been obtained beforehand. It is needless to say that this requisite has been fully attained in the *Orchid Review*, which has thus secured the confidence of Orchid-growers, and will, we trust, long retain it.

AGAVES IN BRITAIN.—A few days ago we were assured that the climate of London at that particular time was 10° warmer than that of Nice. Any one looking at our illustrations of Agaves in this week's issue (see fig. 32, p. 69, and Supplementary Illustration) might be led to the conclusion that not only the south-west coast, but even the East of London was as favoured as the coast of Provence. Who would imagine that our Supplementary Illustration was a reproduction of a photograph taken in Victoria Park—yet so it was! In the warm climate of South Devon we are not so surprised at seeing these noble plants, for we have often figured them from the Scilly Isles and the adjacent coast. Our present illustration (fig. 32) is taken from a plant in the gardens of R. F. WILKINS, Esq., Kingswear. There were about ten large plants at Victoria Park, where they have remained for some thirty years. The first flowering occurred in 1901, and during the past season two others developed flower-stems, and were planted as central objects in a great bed of succulents, and the illustration shows the central portion of that bed. A peculiarity with this variety of Agave is the rapidity with which the flower-stem is formed in its early stages, growth taking place at the rate of nearly 6 ins. in twenty-four hours. "The two plants," says Mr. MOORMAN, the Superintendent, "grew in a house 12 feet in height, and the glass had to be broken so as to allow them to develop, and the weather was not fine enough to allow me to place them safely out of doors. Each of the flower-shafts averages about 24 feet in height, and is furnished with several whorls of dull Lily-like flowers, and can only be said to be attractive when their yellow stamens appear conspicuous above the cluster of calyces. The summer of 1901 was warm enough to permit fertilisation of the flowers then open, and on the approach of frost the plant was placed in its withering state under glass without root or soil, and the seeds were in this manner fully ripened, and germinated a few days after sowing them, with the result that I have now nearly 100 young plants so raised. I send you a pod of seed, and a young plant raised from the seed sown on February 2, 1902."

LINNEAN SOCIETY.—The next meeting of this Society will be held on Thursday, February 5, 1903, at 8 P.M., when the following paper will be read:—Prof. F. W. OLIVER, "On the Structure and affinities of Stephanosperma, Brongniart, and other fossil Gymnosperm seeds." Exhibition: Median Prolification in Geum rivale, illustrated by specimens from the herbarium of Sir J. E. SMITH, and other sources.

THE SWEET PEA SOCIETY.—The schedule of prizes to be offered by the National Sweet Pea Society at the next exhibition on July 15 & 16, at Earl's Court, has just been received, together with the Committee's report and balance-sheet for the past year. There will be a special class for nineteen varieties of Sweet Peas, to illustrate the colour distinctions in the Society's classification, the Committee having classified them by colour alone into nineteen sections. Then follow classes for thirty-six, twenty-four, and twelve bunches of Sweet Peas, distinct, with duplicate classes from which members of the trade are excluded. A number of classes is devoted to competitions with two bunches of Peas of stated colours, and the remaining classes are designed to show the effectiveness of Sweet Peas in table and other decorations. The Secretary is Mr. H. J. WRIGHT, 132, Dault Road, Wandsworth.

MR. JAS. HUNTER, OF LAMBTON CASTLE GARDENS.—The following circular concerning Mr. J. HUNTER has been sent to us for publication:—"Mr. JAS. HUNTER'S retirement from the supervision of Lambton Castle gardens has evoked a wide-spread and earnest feeling that some tangible recognition should be tendered him for his eminent services to horticulture and to horticulturists, for his never-failing courtesy to the numerous visitors to the gardens, and in appreciation of his good qualities as a friend and neighbour. At an influential meeting held at the Queen's Head Hotel, Chester-le-Street, it was unanimously resolved to invite the co-operation of working committees in Edinburgh, Sunderland, Newcastle, and South Shields, to work in conjunction with the Chester-le-Street Committee, thus giving Mr. HUNTER'S numerous friends, over as wide an area as possible, the opportunity of showing their appreciation of the object in view, and by their subscriptions to bring it to a successful termination. Secretaries, M. D. THOMPSON, the gardens, The Hermitage; THOS. GARNETT, estate office, Lumley Castle. Subscriptions may be paid into Lloyd's Bank, Chester-le-Street, payable to F. C. BULLOCK, Treasurer; or will be received and acknowledged by Mr. W. H. MASSIE, 1, Waterloo Place, Edinburgh; Messrs. FINNEY & Co., seedsmen, Newcastle-on-Tyne; Mr. J. SUMMERS, florist, Fawcett Street, Sunderland; Mr. BARNARD COWAN, superintendent, Harton Cemetery, South Shields; Messrs. M. D. THOMPSON and T. GARNETT, Chester-le-Street; G. H. COOKE, Lambton gardens, Fence Houses; Mr. D. THOMSON, 24, Frederick Street, Edinburgh; and Mr. ALDERSON, 149, High Street, West Sunderland."

ROYAL GARDENERS' ORPHAN FUND.—The fifteenth annual dinner in aid of the above Institution will take place at the Hotel Cecil, Strand, W.C., on Tuesday, May 5, 1903, under the presidency of the Right Hon. the Earl CARRINGTON, P.C., G.C.M.G., &c. The Secretary will be glad to receive the names of any gentlemen who may desire to act as stewards, or to be present on this occasion, and will be pleased to furnish any information that may be required with reference thereto. Subscriptions, to be placed on the chairman's list, are earnestly solicited.

THE NATIONAL CHRYSANTHEMUM SOCIETY will hold its annual meeting on Monday next, February 2, at the Albert Hotel, Victoria Street, Westminster, at 7 P.M., Sir A. K. ROLLIT, M.P., President, in the chair. In addition to the ordinary business of such meeting, some alterations and additions are proposed to Rules X., XIII., and XIV. In view of previous correspondence, it is interesting to see that it is proposed to add to Rule XIV., "No member of any committee of the Society shall be eligible for nomination as a judge at any of the Society's exhibitions.

VEITCH MEMORIAL FUND.—At a meeting of the Trustees held on the 27th inst. (Dr. MASTERS in the chair), it was decided to offer to the Royal Horticultural Society, two Medals and prizes of £5 each for competition at the Chiswick Show, to be held on September 29, and two following days, one Medal and prize to be awarded to fruit, and one Medal and prize to vegetables. It was also decided to offer the Birmingham and Midland Counties Fruit and Floricultural Society, a Medal and prize of £5 to be awarded to fruit; also a Silver Medal to Mr. STOLLARD, of Clay Cross, Derbyshire, in recognition of his long and faithful services to horticulture, extending over a period of sixty years as Secretary of the Clay Cross Horticultural Society. It was further resolved to contribute the sum of fifty guineas towards the fund being raised by the Royal Horticultural Society for the erection of a New Hall and Offices.

DONATION BY MR. T. SUTTON TIMMIS. — Horticultural visitors who saw the fine stove and greenhouse plants staged for the past two seasons at the Shrewsbury show by Mr. B. CROMWELL, gr. to T. SUTTON TIMMIS, Esq., Cleveley, Allerton, Liverpool, will learn with satisfaction that not only to horticulture does Mr. TIMMIS' sympathy extend, but his name is prominent in every good work. The latest gift is a sum of £10,000, which this gentleman has vested in trustees for the investigation of the origin and the cure of cancer, the researches to be carried out at the Liverpool Royal Infirmary, and the new laboratories of experimental medicine at University College.

BRYOPHYLLUM CRENATUM. — We learn that the plant figured in our last issue from Messrs. VEITCH'S establishment was originally obtained from Kew, and that the authorities of the Royal Gardens were in their turn indebted for it to Messrs. VILMORIN, ANDRIEUX ET CIE., of Paris. See *Revue Horticole*, 1900, pp. 175, 362.

DISEASES OF PLANTS. — Messrs. KIRCHNER & BOLTSHAUSER have published the sixth series of their *Atlas der Krankheiten, &c.* It is principally devoted to the diseases and insects affecting the Vine, and consists of a number of coloured plates of 8vo size in a portfolio. The plates are beautifully executed, so that the fact that the explanatory text is in German need not deter anyone not familiar with that language. The work is published at Stuttgart by EUGEN ULMER, but it may be had from WILLIAMS & NORGATE.

LADY FELLOWS AT THE LINNEAN.—It will be seen from the report in another column that the proposal to obtain a new Charter, in accordance with which women may be elected Fellows of the Society, was adopted in a meeting of seventy-one Fellows by fifty-four to seventeen.

FROGMORE.—The KING has recently inspected the buildings which have been completed since his last visit to Windsor, and which have already been alluded to in these columns. A large substantial house has been erected for the accommodation of twenty-four young unmarried gardeners, who hitherto had to live in small cottages scattered about the grounds. The men are stated to be highly pleased with their new home, in which each man has a well-ventilated cubicle as his sleeping apartment, and there are dining, reading, and reception rooms for general use. The Palm-house in the grounds has been converted into a luncheon and tea hall for large parties in the summer, and will no doubt be used a great deal during the Ascot weeks.

FRUIT FROM TASMANIA: SEASON 1903.—Respecting the deliveries of the on-coming season's fruit by the Peninsula and Oriental Company's vessels, we have received the following data from the officials of that Corporation :—

Name of Ship.	Due in London.
"India"	April 5 (about).
"Oceana"	April 19 (about).
"Australia"	May 3 (about).
"Victoria"...	May 17 (about).
"China"	May 31 (about).
"Himalaya"	June 14 (doubtful).

Should fresh arrangements be made in any case, these will doubtless be published in time.

THE FRUITERERS' COMPANY.—At a banquet of the Company held on Monday last, Mr. LEWIS CASTLE was presented with the Company's prize of 25 guineas and a Gold Medal for the best essay on "Fruit and Vegetable Packing for Market."

TECHNICAL INSTRUCTION IN THE NORTH RIDING.—We have before us the eleventh Annual Report of the Technical Instruction Committee in connection with the North Riding County Council, and it is of a highly satisfactory character. The following is the scheme of instruction, as divided into sections:—1, agriculture and allied subjects (horticulture, veterinary subjects, poultry-keeping, dairy work, &c.); 2, elementary school teachers' classes for art and Nature-study; 3, aid to secondary (including science) schools; 4, schools of art and science and art classes; 5, evening schools; 6, domestic economy, carpentry, shorthand, beekeeping, &c.; 7, award of scholarships and exhibitions; 8, grants in aid of the purchase of apparatus suited to technical instruction. In the second section the classes were very full. Twelve Nature-study lessons were given at Northallerton, the subjects treated of including the structure and functions of a green leaf, structure and germination of seeds, a winter branch, and methods of seed dispersal. It was somewhat unfortunate that the classes being held in winter, outdoor study was conducted under difficulties. Mr. ALFRED GAUT, Extension Lecturer for the Victoria University, reports very favourably upon the interest and intelligence evinced by the students. The total number of students receiving technical instruction in Section 7 was 1,290, out of a grand total in all sections of 6,342. Considering the diversity of subjects undertaken, this is a large proportion, and shows the interest for agriculture and allied subjects shown in the Riding.

A NEW CHINESE VEGETABLE, DIOSCOREA FARGESII.—"Under the French title of Igname de Farges, young roots of this interesting new edible tuber, which attain their full size in about three years, are, writes Mr. Gumbleton, now being offered for the first time by Messrs. Rivoire, of Lyons, at the moderate price of nine francs for ten tubers, or a franc for one. The tubers are round, and of the form of a small orange, and weigh when fully grown from 3½ to 4 oz. They have the great advantage over the ordinary Yam or Sweet Potato of growing and reaching their full size in ordinary garden soil, whereas the Yam (Dioscorea batatas) requires for its successful culture from 2½ to 3 feet depth of soil, and is so brittle that without extraordinary precautions and care, it is almost impossible to extract the tubers from the ground without breaking and spoiling them. The plant also produces numerous bulbils above ground which greatly facilitate its propagation and increase; these can be had for ten francs the hundred, twenty-five for three francs, or ten for one franc and a half. It is said to be hardy, and should, we think, be an acquisition to our vegetable gardens."

THE VINE AND THE WINE IN THE TIME OF THE ROMANS.—Under the title *La Vigne et le Vin chez les Romains* (Paris: G. NAUD, 3, Rue Racine), M. CURTEL has published a very interesting account of the Vine and its products in classical times. He deals with the subject not so much from the point of view of the classical scholar as from that of the Vine-grower; he has studied the Roman authors, such as CATO, COLUMELLA, PLINY, as well as the poets, and comes to the conclusion, from a comparison of all the available evidence derived from these sources, that the Romans were every bit as good cultivators as their modern representatives. The author goes on to show that the processes of wine-making did not differ essentially in Roman times from those practised now; and he concludes that modern wine-growers might find more examples to follow than of errors to avoid in studying the practices of their predecessors. The book is arranged with that method and lucidity which are characteristic of the best French books, and those interested in the Vine and its products will find much to interest them in M. CURTEL'S pages. We may add that M. CURTEL is director of the Œnological Institute of Burgundy, and is therefore well qualified for his task, the more so that he has not forgotten his Latin.

RELATIONS BETWEEN ATHLETICS AND INTELLIGENCE.—In the *Proceedings of the Royal Society* (vol. lxxi., No. 469), is a paper on "The Correlation of the Mental and Physical Characters in Man," by ALICE LEE, MARIE A. LEWENZ, and KARL PEARSON, F.R.S. The following is a brief summary of the statistics collected and tabulated:—"While the intelligent are only slightly the more healthy, the athletic are notably the more healthy element in the community. Further, the athletic are considerably more intelligent than the non-athletic; they are the more popular and more noisy element, and they tend to quick rather than sullen temper. We may in general terms describe the athletic boy as healthy, quick-tempered, and intelligent, when compared with the non-athletic boy. He certainly under all three headings should make a better soldier than the non-athletic, and it is hard to discover any statistical evidence in school life for such expressions as 'the flannelled fool at the wicket,' or 'the muddied oaf at the goal.' What happens in later life can only be determined when ample statistics are available for reduction and comparison. Failing such data, we can argue only from the vaguest of impressions." To avoid extremes would here as elsewhere seem to be the wisest course to pursue.

UTILISATION OF ATMOSPHERIC NITROGEN.—The discovery within the last few years that certain plants are capable of storing up nitrates, absorbed by the agency of bacteria from the nitrogen of the atmosphere, in their roots in the form of nodules, has led to experiments in America which promise wonderful results. A description of how the nitrogen of the atmosphere has been utilised for the manufacture of a commercial fertiliser is described, the pioneers of this industry being Messrs. BRADLEY and LOVEJOY. They have succeeded in producing nitrate of calcium at less than half the cost of nitrate of soda, which is found in a state of nature in Chile; not only so, but when it is stated that nitrate of calcium is superior to nitrate of soda as a fertiliser, the importance of the invention will be fully understood. *Indian Gardening.*

WATER SUPPLY FOR GARDENS AND HOTHOUSES.

(*Concluded from p. 27.*)

WATERWHEEL.—Where a "ram" is not suitable, for various reasons, it becomes necessary to adopt some other means, and there are almost always pumps of various descriptions driven by some kind of power. Where there is a running stream, and the water can be held back by a "bay" or dam, the most economical of these is a water-wheel, which may be either an "overshot," a "breast," or an "undershot" wheel. In the first the water passes over the wheel into buckets surrounding it, and acting by its weight causes the wheel to revolve. The second receives the water about the centre, sometimes into buckets as before, but more often upon "floats" surrounding the wheel, like a paddlewheel; these buckets or floats work close to a curved wall built of timber or brickwork, which confines the water to the wheel until it escapes at the bottom. The "undershot" wheel

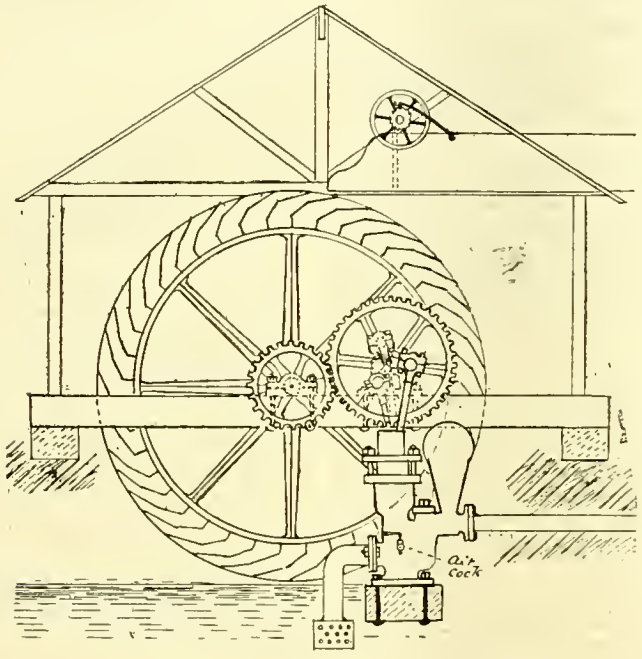


FIG. 33.—WATERWHEEL FOR PUMPING PURPOSES.

(fig. 33) takes the water underneath, or only a short distance from the bottom of the wheel. This wheel is a floatwheel, and as the water rushes under it, it strikes the floats and drives the wheel round.

The "overshot" wheel is by far the best where there is sufficient height for it to work. The "breast" wheel is the next in efficiency, while the "undershot" should never be employed unless there is an abundant supply of water.

When a waterwheel is employed to work pumps, it generally is connected to them by cogwheels to reduce the speed, and the pumps are driven by a crankshaft to which one wheel is attached, the other being on the waterwheel shaft or axle. In order to obtain a steady flow of water the pumps, which are almost always of the "forcing" variety, are arranged in a set of two and often three pumps, so that one is always delivering or beginning to do so while the other is drawing (see fig. 33).

WINDMILL.

In some cases, however, there is not sufficient water to work a wheel, and resort must be had to other sources. The cheapest and simplest of these is a windmill, but the positions where a windmill can be applied are necessarily limited. Assuming, however, that the well or other source of supply is situated so that a windmill can be applied, there are several methods of fixing them. The ordinary description of mill used for the purpose is usually shaped like a wheel, and fitted with a number of flaps or "shutters," which can be closed or opened to stop the mill. When the wind blows very hard, the shutters open, and allow it to pass through, closing when the wind sinks. The older kind of windmill has four arms or "sweeps," which are also provided with "shutters," and are kept closed by a spring or weight, as in the circular windmill.

The writer, however, has seen a windmill made in a very much simpler manner, which acted almost as well, in which the "sweeps" were nothing more than four boards secured to the ends of two pieces of timber crossing each other, the boards being set at an angle to catch the wind. The axle to which the pieces of timber were fastened had a crank which worked the pump-rod, this rod having a swivel joint to allow the mill-sweeps to be turned to the wind by a long and wide board, like a bird's tail or a weathercock. Although this mill looked somewhat clumsy, it performed its duties extremely well. Fig. 34 shows a mill copied from this, with dimensions.

EMPLOYMENT OF ANIMALS.

Lastly, animal power can be employed to drive the pumps, this being a very common device. The pumps, either "lift" or "force," are connected by gearing to a "horse-gear," which is too familiar to require description, and to which the animal is attached. The great drawback of this method however is, of course, the attention required to drive the animal, and the frequent circumstance that very often it is required at the same time for other duties.

Where wind power is employed, there is, of course, a certain amount of uncertainty as to its operation; but this is seldom such as to prove a serious drawback, and can in great part be overcome by arranging the reservoir of such size as to supply the garden, &c., for more than a certain period of time, as in many districts there are seldom days when there is insufficient wind to drive a windmill of light construction in a favourable position. Care should be taken of the pumping machinery in frosty weather; and on stopping the air-cocks of the pumps should be opened and all water drained out to prevent cracking or bursting the pumps. If a waterwheel is employed, and it is constructed of cast iron, it should be carefully protected by a temporary shed formed of hurdles thatched with straw, unless already placed in a house, as in fig. 33.

In conclusion, circumstances are so varied that the writer can in this article only offer suggestions, and where a system of water supply is about to be installed, it is by far the best course to seek expert opinion, which can often only be given on the spot.

DESCRIPTION OF THE WINDMILL PUMP (FIG. 34).

a. Cross placed over well, and forming a foundation for the mill, made of two pieces of timber 4 ins. by 4 ins. Length depends on size of well.

b. The post, 4 ins. diameter (height depends on circumstances). The post is bored to take the pump-rod, as shown.

c. The shores supporting post, 2 ins. by 3 ins. (Only two shown.)

d. Frame of mill. (A fair size would be 4 ft. high by 2 ft. wide.) Made of 2 in. by 3 in. stuff, finished with a pointed roof, and covered with light weather boards or not, as preferred.

e. Centre beam carrying weight of mill, 3½ ins. square in middle, tapered to 3 ins. at ends, bored to take a brass bush to receive the pivot *f*, formed of a piece of steam pipe (fitting the pump-rod), with a flange (*g*) screwed and brazed on the lower end. This flange is held on the post by three screws fitting three nuts, let into the post as in a bedstead.

h. The sweeps. A fair size would be, each 6 ft. long by 1 ft. wide, formed of ½-inch board, with a piece of ½-inch lath on the outer edge.

i. The two pieces carrying the sweeps, 6 ft. long, halved together, and thus reaching half way down the sweeps. These are bevelled at their opposite ends to receive the sweeps, to an angle of about 22° at their upper end, and about 15° at the extremity.

These two pieces are 3 ins. square in the middle, tapering to 2½ ins. at ends, and would be better if of Ash, but if Deal they must be strengthened by a piece of iron forged like a cross about 1 ft. long, and screwed to the back of the pieces. The iron has a square-tapered hole to take the axle (*j*), of 1½-inch iron, round or square, which must be turned with three bearings, and formed with a crank exactly in the centre to work the pump. The stroke of the pump for a windmill must not be too long—about 8 ins. is a fair proportion.

The bearings at each end of the axle (*j*) run in brass bearings (*k k*), and the centre bearing, which is on the crank, works the pump-rod (*l*), by the sling (*m*), which is carried by the guide (*n*) fixed across the mill.

The axle (*j*) has a nut and screw at its outer end, by which the pieces (*i*) are secured to it. If the pieces (*i*) are of Oak or Ash, the iron cross may be dispensed with, but a small plate with a square hole must be screwed to the back of them to receive the axle.

o. A swivel-joint on the pump-rod, to allow the mill to turn to face the wind. This can be dispensed with if preferred, but the mill works far better with it.

p. The "tail" or vane, 6 ft. long by 3 ft. wide, of ½-inch stuff, with a centre rib 6 ft. long, 2 inch by 3-inch stuff, and three cross ribs to strengthen it, 2 ins. by 2 ins. This vane is for keeping the sweeps to the wind, and should just balance the weight of them.

q. Three iron stays of ½-inch iron rod (only two shown) to steady vane.

NURSERY NOTES.

EXTENSIONS AT READING.

THE enterprising seedsmen, Messrs. Sutton & Sons, of Reading, have for many years past provided a New Year's show of Primulas and Cyclamens in the months of January and February. It is an exhibition that never fails to please a gardener with an interest for winter flowers, and who delights to see the finest strains obtainable cultivated to a degree that appears to leave little or no room for improvement. The student who examines the progressive variations obtained in the process of developing the strains is also specially interested.

This season the plants are on view in a new range of houses which have been built in the trial-grounds (or "The Farm," as it is known at Reading), an area of about 80 acres, which forms a very prominent feature of the landscape just before one enters the town by the London & South Western Railway.

Until now, the plants have been cultivated at a smaller establishment in the town itself, where the late James Martin laboured in the congenial work of cross-fertilisation now carried on by his successor, Mr. McDonald. The firm had several good reasons for transferring the work to the trial-grounds, as stated by Mr. Arthur Sutton, on the 23rd inst., when a consider-

able party of horticulturists were invited to Reading to inspect the houses. It was desired to have the indoor plants upon their own ground, the trial-grounds being the firm's freehold property, and at the same time to avail themselves of the better conditions for the plants which exist in the open position 1½ mile out of the town. Like all other cultivators of plants, Messrs. Sutton have found that the purer the atmosphere, and the more rural the site upon which the plants make their growth, the easier may the gardener obtain the perfection for which he strives. It is true that there is the satisfaction of recording from time to time instances of successful culture in town gardens; but these instances are never the result of the prevailing conditions, but in spite of them.

THE NEW HOUSES.

The new range of houses has been built by the well-known horticultural builder Mr. Duncan Tucker, and consists of twelve span-roofed houses, grouped on either side of a large pavilion or Palm-house, and most of them may be entered from corridors, without the visitor having occasion to go into the open air. The pavilion has been provided with large double doors so that a van may be taken inside, and the packing and unpacking of plants be carried out under suitable conditions. The houses are 60 feet long and 14 feet wide and are eminently suitable, together with the new pits and frames, for the cultivation of Primulas, Cyclamens, Achimenes, Gloxinias, herbaceous Calceolarias, and other such plants, that the Reading firm make specialties.

Arrangements have been made to afford fresh air to the plants without injurious draughts, and the fullest provisions exist for collecting an abundance of rain-water, thus showing that the superior qualities as an aid to growing plants of rain-water over hard-water from taps is appreciated. A simple contrivance for saving labour in regard to the transportation of plants is so very simple that one wonders the method has not been common long ago, but the writer does not remember to have seen it in practice previously. The houses are provided with paths through the centre, and there are shelves on either side; in most cases these have iron supports, and corrugated zinc laid across them covered with gravel. Along the iron fronts of the shelves there is a ledge 2 inches wide, extending towards the centre of the path, and flat trolleys have been made with small wheels that fit this gauge; consequently one man may push the trolley or tray on the same level as the shelves to the further end of the house, fill it with plants, and push it to the other end with the greatest ease and convenience, and owing to the arrangements in the corridor, the repotting of the plants can be carried out close to this point. Every gardener will realise how much better this arrangement is than the carriage of a hand-barrow in and out of the houses, which requires two persons, or even than the common method of employing a sieve.

There are four powerful Trentham or Cornish boilers, contained in two convenient stokeholes, and in ordinary weather the work is done by two of these. The arrangements for cleaning the flues, bringing the clinkers, &c., away by means of pulleys, and the provision of safety-valves to the boilers, all show that the importance of securing efficiency in these details has been recognised. Valve indicators have been affixed to the hot water-pipes, which show exactly to what degree the valve is opened.

THE DISPLAY IN THE HOUSES.

Chinese Primroses.—The collection of plants in bloom consists of from 1,200 to 1,300 plants, in about forty varieties. The writer was particularly pleased with the large batch of plants representing the new variety known as The Duchess, for it showed how fixed it has become, and that there is little difficulty in propagating it truly from seeds. It was figured in these columns on February 3, 1900, and most of our readers are familiar with the zone of reddish-rose colour around the yellow eye which characterises the variety. There is, therefore, no need to describe it minutely now, but it may be remembered that the variety was obtained from a cross between Crimson King and Snowball. A batch of plants of The Duchess produces an effect quite distinct to any previously afforded by Chinese Primroses. The characteristics of The Duchess have been imparted to a double-flowering variety, and the plants, with fine double flowers, having the colour concentrated in a zone around the centre, represented the best novelty in the collection this season. One plant of The Duchess type produced flowers last year of stellate form, and it was hoped that from it a race of Star Primulas having the coloured circle might be got, but the seedlings from that plant have this year reverted to the exact type of The Duchess. However, there may yet be "star" Duchesses to grace future collections.

There were many selections from crosses that have not yet been fixed; the first seedlings from any cross have always dissimilar characteristics, and the best of them are subsequently "fixed" by careful selection. Of these first seedlings it would serve no purpose to write in detail now although the variations in them have such absorbing interest for anyone really interested in these plants. The older varieties have been described appreciatively on previous occasions, and are worthy of high praise.

Among white varieties there is Snowdrift, always popular because it blooms early, blooms abundantly, and its flowers open white and remain white so long as they last. Pearl has a more proper habit from the florist's point of view: it blooms later, its flowers are larger and of better form, but after expanding they blush a little; Royal White is remarkable because it and one other white variety have dark-coloured foliage.

Of pink-flowered varieties there were noticed Reading Pink, and Sutton's Pink. Reading Pink possesses deep colour, and the flowers are beautifully fringed; and Sutton's Pink, whilst having a better habit, has paler flowers and is therefore less attractive. Rosy Queen, a beautiful Fern-leaved variety might also be classed with the pinks, but the colour is richer and more Rose like. Brilliant Rose is a capital variety, rich in colour, and appears always to grow and flower well and freely. Of reputed Blue Primulas, Reading Blue is the deepest in colour and produces fine bold trusses of large flowers. Blue Fern-leaved is of the same type except in respect to the character of the foliage; but a variety that has been much admired for three years or more, is that known as Cambridge Blue: the colour is paler than in the two varieties already described, and the flowers have a fine fringe and generally a margin of white—it is a favourite with most visitors. Reading Scarlet and Crimson King may be recommended for their exceedingly rich colours. A batch of Crimson King has a splendid effect, and it blooms continuously for a long period, but as is frequently the case in such varieties, the colour is somewhat fugitive.

The Giants were coming nicely into bloom, but are naturally rather later than the others. Giant strains may be had in pink, white, terra-cotta, and crimson.

If space and time permitted, one could write an essay on the beauty and usefulness of Messrs. Sutton's double flowering Primulas. Reference has been made already to the newest of this type, but the older varieties in blue, pink, white, Carnation-flaked, and scarlet, are all to be highly recommended. Pink Beauty is especially rich in its colour effect.

The Stellata section is still popular in gardens, and is used largely for decorative purposes; this type is represented in pink, blue, white, and carmine. The variety Mont Blanc, white, is particularly handsome.

Cyclamens.—Most readers of this Journal are familiar with Messrs. Sutton's Cyclamens. Some of the most popular varieties are the Giants, in white, cherry-colour, rose, pink, crimson, purple, and crimson and white. White Butterfly of a somewhat different form than the others, is liked everywhere; and Vulcan is indispensable for its exceeding rich crimson colour. Phœnix is also pretty; but one of the most distinct, and a variety of especial charm to the writer is Salmon Queen — its colour is so rare in Cyclamens, and so pleasing withal.

It only remains to be said that the Cyclamens for next season could be seen just in their first seed leaves, and that the Gloxinia tubers had commenced to make growth.

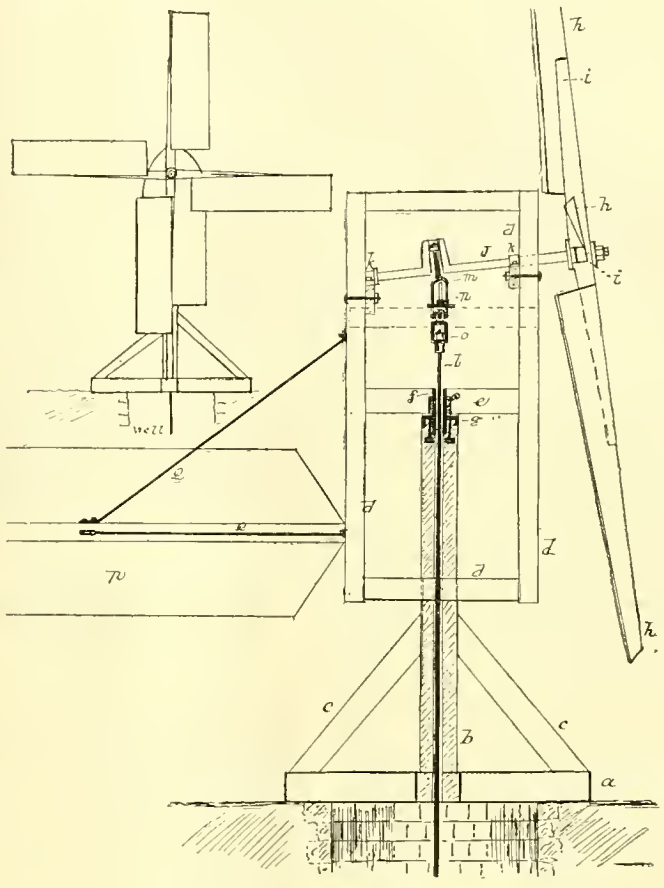


FIG. 34.—WINDMILL FOR PUMPING PURPOSES. (SEE P. 74.)

WINTER-FLOWERING BEGONIAS AT PENRHYN CASTLE.

THERE is always something of more than ordinary interest to be seen at this establishment, and something that is worthy of one of Britain's foremost gardeners, who has long and ably directed matters horticultural there. This time it was the Begonias, and the three houses, containing Gloire de Lorraine in three distinct stages, were much the best I have ever seen. The plants were growing in 5, 6, and 7-inch pots, according to the vase requirements in the Castle, and many of them were 3 feet high and nearly 2 feet through at the top of the pot, trained up in a loose pyramidal shape, and covered with large, deeply coloured, pink blooms. The plants had evidently received the most generous treatment, having received abundance of heat, light, air, and stimulant. The succession batches were equally promising, but the white form cut a poor figure alongside.

There were several of the new scarlet section in variety, such as Winter Cheer, Mrs. Heal, Ensign, &c., all of which did credit to the man in charge, and which will, doubtless, as soon as stock can be worked up, become a fine feature to our invaluable winter-flowering Begonias.

There is a large batch of that later species Socotrana, one of the parents of Gloire de Lorraine, although a tuberous-rooted kind, of which Mr. Speed speaks most highly; which coincides with my own opinion. Gloire de Sceaux, one of the dark foliaged varieties, is another useful variety grown there. *W. Crump, Madresfield Court.*

MENDEL'S METHODS OF PLANT BREEDING.*

(*Concluded from p. 34.*)

3. *Differential Characters.* — The third point in Mendel's method is that the characters selected for crossing must not only be single and constant, but also differential in the two parents. If the single characters be nearly alike in the two parents it will be impossible to determine which parent the offspring resembles in that character, because all three would be nearly alike; on the other hand, the wider the difference between the single characters of the two parents, the more clearly defined would be the characters in the resulting offspring, and the easier it would be to refer the resemblance in the offspring to either parent. Mendel, in his experiments with Pisum, takes single and constant characters in the parents, which are at the same time distinctly differential, and which therefore can be clearly defined in the offspring.

4. *Dominant Characters.*—The fourth point in Mendel's method is distinctly new, and that is the crossing together of dominant and recessive characters only, i.e., one of the characters of the differential pair must be always distinctly dominant over the other one, which is known as the recessive character. This gives uniformity in the first generation, and avoids the great difficulty of working on to the next generation with results that are not uniform, e.g., if the pair of characters were of equal potency, they would, on the whole, be intermediate—either blended or mosaic—tending towards one and the other parent alternately. It is obvious therefore, in cases like these, when one wished to carry on the experiment to further generations, the lack of uniformity in the first generation would make matters so complicated as to be almost unworkable. Mendel avoids this by the selection of dominant and recessive characters only, and his results can therefore be easily recorded and tabulated numerically.

5. *Large Numbers.* — The fifth point in Mendel's method is also very important, and far superior to the methods adopted by the earlier experimenters. In the older experiments, for the most part, only a few individuals of each cross were raised and observed, hence the range of variation apparent was either extreme or scarcely perceptible, according to chance and circumstances. This no doubt accounts in some measure for the very different results obtained by different observers at different times. Mendel avoided these difficulties by raising large numbers of individuals in each generation, and in this way practically gauged the total range of variation in each case.

6. *Many generations.*—Now we come to the sixth and last method of Mendel to be noted here, and that is, he was not content to stop at the first generation or even the second, as so many of his predecessors did. In all cases Mendel carried out the experiments to the third, fourth, and fifth, and in two cases actually to the sixth generation; and this work, though it must have been laborious, was absolutely necessary, and once more shows the thorough and painstaking industry with which Mendel overcame all obstacles in his pursuit of truth.

To sum up the methods:—Those hybridists who wish to follow in the footsteps of Mendel, or those of his disciples, and thus help in the elucidation of the baffling problems of heredity, will find it essential to select in the original parents characters for crossing which are at once single and constant, and differential and dominant; with the further proviso that large numbers of individuals in many generations must be observed and compared. By these methods alone will definite results be obtained.

In conclusion, I will give as an illustration of Mendel's methods his own selection of characters in Pisum:—

PISUM SATIVUM.

(*Constant Races of Garden Peas*)

	Dominant × *Recessive.*
1. Form of ripe seeds... ...	"round" × "wrinkled."
2. Colour of cotyledons ...	yellow × green.
3. Colour of seed-coats (coloured)	brown × white.
Colour of flowers (coloured)	purple × white.
4. Form of ripe pods	inflated × constricted.
5. Colour of unripe pods ...	green × yellow.
6. Position of flowers... ...	axial × terminal.
7. Length of stem ("haulm")	6–7 feet × ¾–1½ feet.

Charles C. Hurst.

* Read at the International Conference on Plant-Breeding and Hybridisation, New York City, Sept. 30, 1902, by C. C. Hurst, Burbage, Hinckley.

HOME CORRESPONDENCE.

ENGADINE CARNATIONS. — A correspondent writes, in answer to an enquiry in the *Gardeners' Chronicle*, January 3, 1903, by "C. J. H.":—I know of no Carnation of that name, and I think that "C. J. H." means Double Grenadin, of which there are two varieties, scarlet and white. They can be obtained of Messrs. J. Veitch & Sons, nurserymen, King's Road, Chelsea, S.W. The seed should be sown in March, placed in a cold frame, and kept close till the seedlings appear, then afford plenty of air to prevent damping. Should the plants damp-off, prick them into boxes or pans, and when large enough to handle, prick them into a nursery-bed at 9 inches apart, and in October transplant them at 18 inches apart to the beds or borders where they are to bloom. Such plants will begin to flower late in June. Double-flowered Grenadins should be raised from seed annually, as they rarely produce "grass" fit for layering. *W. Daniels, gr., The Warren, Cromer.*

COLEUS THYRSOIDEUS —As a winter-flowering plant Coleus thyrsoideus is an acquisition in gardens where much decorative work has to be carried out, it being valuable as a pot-plant for furnishing flowers for cutting. When used for the latter purpose the flower-spikes should either be cut in the early morning and placed in cold water or left on the plant till just before they are placed in the glasses, it being liable to flag. The plant is easy of cultivation, and cuttings strike very readily. Whilst in full growth in the summer it should receive plenty of liquid-manure, and occasionally soot-water. It is invaluable for its colour. We have just finished cutting up a batch of fifty plants, obtained from one small plant purchased last spring; the largest are in 8-inch pots, 3 feet high, and have thrown up some splendid long spikes of bloom, which have been much admired. The smaller plants are placed in silver vases to adorn the dinner-table, and they have a very light and pretty effect. During the winter months ventilation should be afforded whenever the weather is suitable, so as to harden the plants for use in the mansion, a night temperature of 55° to 60° being high enough. *A. B. Wadds.*

GOOSEBERRIES ON NORTH WALLS.—I cannot agree "that fruit grown on a north aspect is usually small and insipid, and totally unfit for the dessert table." True, the fruits are not so sweet as those grown in the open quarters; nevertheless, a dish of ripe fruit in the months of September and October is of value when one has to provide eight or ten different kinds of dessert fruits. Moreover, many persons prefer having fruit from the open to that ripened under glass during the months mentioned, and few despise ripe Gooseberries; and there are some who never partake of Grapes, Melons, or Peaches. It may be owing to the genial climate of Devonshire that the fruit from north walls requires to be netted to preserve it from the birds. The fruits are neither small, sour, or extra tough in the skin. The names of the varieties that grow here on the north wall are London, Clayton, Speedwell, Progress, Leveller, Snowdrop, Trumpeter, Keepsake, Railway, Mitre, and Australia. *J. Mayne, Bicton.*

—— May I put in a word or two in favour of the Gooseberry? In the early sixties I was employed as journeyman in the gardens at The Hall, Sutton Forest, York. The gardener was expected to put as many varieties of fruit on his master's table as possible late in autumn, and a good bit of the north wall was covered with the old Rough Red Gooseberry, which is a variety that bears well, swells to good size, and will keep to the end of September or the beginning of October. The flavour was not to be despised. The wall was high, being the back of lean-to vineries. Other fruits used to be done well, viz., autumn-bearing Raspberries and Red Currants, the fruit of which was kept till frost came. I well remember on one Sunday afternoon the head gardener sent round for all hands to turn out and gather the Raspberries, as it looked like frost. We set to work, and gathered over a peck of very good Raspberries; and it was well that we did so, for that night a sharp frost occurred that finished our Raspberry-gathering for that year. *W. Shrives.*

GARRYA ELLIPTICA. — I note attention is directed at p. 11 of the *Gardeners' Chronicle* to this plant. It was at one time thought that the plant needed protection of some sort, and it was seldom planted in the open. Until about three years ago there stood a pair of Garryas in a wayside garden in this district that were not less, I suppose, than 10 feet high, and as much in diameter. These plants were then known to be nearly thirty years old, and were planted upon a slightly raised bank of poor and, in summer, very dry soil. A main limb out of many (for in their fullest glory the gardener "pruned" them with a saw to within a little distance of the ground), one of the pieces sawn off, I placed before the Floral Committee of the Royal Horticultural Society, two years ago, was nearly 3 feet long, and averaged 2½ inches in diameter. Such strong branches indicated the suitability of the soil and the environment. Although this plant was under my notice for many years, I had never observed the foliage to be browned in the winter. In certain instances there are good reasons for planting trees and shrubs against sheltering walls, but to confine a bush-growing plant of the size stated to such positions is to lose much of the charm with which it is endowed, and that in a special degree fits it for the open garden or the lawn. But I do not think the plant is suited for very rich soils of any kind, and a poor, rather light, well-drained soil is the most likely to be productive of catkins. *E. Jenkins, Hampton Hill.*

SCOTTISH HORTICULTURAL ASSOCIATION.—The able letter in your issue of the 17th inst. by "Country Member," calling attention to the "Alexandra prize" offered by the Association for city-grown Chrysanthemum blooms, has been read

here by many members with general approval. It might offer a strong temptation to dishonest showing, as competitors with their inferior town-grown flowers, &c., might conceivably be induced to seek the aid of country growers, and the prize-money so generously offered would cover all the incidental expenses. *Town Member (Edin.).*

THE LOGANBERRY. — I beg to thank those kind writers for replying to my note on the Loganberry, for they all bear out my statement, that the shoots need support, the plant being a semi-trailer, and I quite believe it was raised from that very fine Californian Blackberry called "Aughianbaugh," and a red Raspberry. I think this Californian Blackberry was sent out about twenty-six years ago. In shape it is very like the Loganberry, and both are very distinct from any other fruits yet raised, "being intermediate in all characters," and although the Loganberry is thought by some to be a true species, and "no hybrid," yet those who have seen the Aughianbaugh Blackberry will have no doubt as to its true origin. *W. C. Leach, Albury Park Gardens.*

SOUVENIR DE LA MALMAISON CARNATIONS FOR MARKET.—Enquiry is made at p. 64, on behalf of "A. W.," concerning the above group of Carnations for market-work, which is equivalent to growing for profit. It is unfortunate "A. W." has not made known the locality in which he desires to grow the plants, for even with intelligent cultivation, much depends on this matter, viz., the influence of altitude. To briefly explain this, it may be said generally, that in certain low-lying districts in or quite near the valley of large rivers, as, e.g., the Thames, Malmaisons are so susceptible to the terrible rust-fungus, Helminthosporium echinulatum, as to render it impossible to grow the plants at all—at least, so as to successfully flower them—much less so for profit. Until a few years ago, these Souvenir de la Malmaison Carnations were grown in the district of Hampton by the thousands, and I could name several who were most extensive growers at the time. For my own part, I was a grower of a few hundreds. But whether by the hundred or thousand, whether in one house or half a dozen, the result was the same, and the constant picking off affected portions so reduced the plants that in less than three years there was perhaps hardly a plant left in the district. This occurred after some two or three years of successful cultivation generally. It mattered nothing whether the plants were layers only six months rooted, or fine old examples in 12-inch or 15-inch pots; the effect was the same, and the huge host went to the rubbish-fire, where the smouldering remains of some thousands day by day was in no wise an edifying spectacle. This is scarcely an answer to the question at issue, yet it so materially affects the would-be balance on the right side, that it is here placed before any actual system of cultivation. Now as to the method adopted, or to be adopted. The best way is to start with well-rooted layers, and given my choice, I would buy preferably from an elevated part of the country, and always purchase to sample. The best time to buy is in September or October—that is, when ground layers are bought, as opposed to potted ones; pot them forthwith, if found satisfactory; if not, return them without delay to the sellers. From the start treat every plant separately; if dry at the root, apply water with a spouted can; there must be no slipshod method of applying water to the lot overhead. From the first the Malmaison Carnation should be under cover; the sides may be opened continuously, but it is essential to success that the leafage be not wetted overhead continuously. To near the end of the year this open frame may be used for the plants, or a cold house fully ventilated day and night is better still. During December, January, and February, not only a dry state overhead, but a comparatively dry condition at the root should be maintained. This is easily done if the application of water is controlled as suggested. The plants need never be more than kept from freezing. Artificial heat is bad; and worse still, a close, muggy state of the house. The potting-soil should consist of a rather heavy loam, with bone-meal, charcoal, sand, or old mortar in lieu of the first, added liberally; avoid the use of manure. Good drainage, with moderately firm potting, and only moderate root-room, are essential. The first flowering would, in the event of success, take place in April and May; each plant should carry from three to five moderate-sized blooms. After flowering, afford a small shift, and grow-on a second year, for it is at this flowering, if at all, that the word "profit" has any meaning. Altitude, in conjunction with good air, according to my experience, is a very important factor, and the plant that at 200 feet or 300 feet or more above sea level may be grown with comparative ease is a source of worry, and is generally unsatisfactory in a low district, subject to fog, much humidity, and lack of sunlight for weeks in succession. If "A.W." has to contend with such inimical conditions, I would not advise him to touch these plants. *E. Jenkins, Hampton Hill.*

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—That any letter of mine to the *Gardeners' Chronicle* on the recent election of pensioners to the "Benevolent" should have helped to call from Mr. N. N. Sherwood such a munificent gift as he has just promised to make to the unsuccessful subscribing candidates for election, is indeed something to be proud of. There are twenty-one such unsuccessful candidates, and Mr. Sherwood's splendid gift to each one of £5 will require from him a total of just 100 guineas—a most generous act, such as we horticulturists are proud to find come, as so many other generous acts have come, from our own ranks. That Mr. Sherwood should have limited his gifts to the subscribing candidates, shows that he is most anxious to increase the number, at present far too small, of gardener subscribers. Now recovered from a great illness, long may this generous donor be spared to assist horticulture with his presence and his aid. *The Writer.*

MARKET GARDENING.

FORCING POT ROSES FOR MARKET.

The outlook is very promising at Mr. Chas. Thos. Kirby, of North Finchley, with regard to Roses. Apparently every bud on the plant is breaking better than usual. I witnessed the potting of many of these Roses, which as they left the hands of the workman were placed on slight hot beds out-doors, thereby encouraging early rooting. This method of Rose forcing is quite safe, and fire heat is very cautiously employed. A third batch of plants is now being taken in, these filling an entire house. In frosty weather, straw, bracken, and other protecting material is thrown over the tops of the plants in beds outside. Some 20,000 pot-plants are being thus treated for market purposes.

PRIMULAS.

While taking notes of the exhibit of Messrs. H. Cannell & Sons, at the Royal Horticultural Society's meeting, on the 27th, I could not but feel sorry for the market grower, for the purchase of Primulas by the public is quite off, and this too, is not only this season, though perhaps, this is the worst, but for several years past. It is not a question of quality, for they are excellent, but they sell slowly and prices are low. The varieties in Messrs. Cannell's collection were such as, Swanley, white and red; Eynsford, red, purple, and white, each of the true strains, and suitable for market purposes. These are but a few of the varieties, and there were others equally good *Stephen Castle.*

ENQUIRY.

Pheasants in the Garden.—A correspondent asks for information as to the most efficient means of preventing pheasants from up-rooting and eating bulbs, especially freshly planted Tulip bulbs. Wire netting has been tried with little success. Perhaps threads of twine inter-crossed and attached to sticks, some six inches above the soil, might be useful. A statement of the experience of some of our correspondents is desired.

SOCIETIES.

ROYAL HORTICULTURAL.

January 27.—The second meeting of the Committees of the Royal Horticultural Society held since Christmas, took place on Tuesday last in the Drill Hall, Buckingham Gate, Westminster. It was a disappointing meeting, for although the weather was mild, and favourable for the transportation of plants, yet there were fewer exhibits than on any similar occasion during the winter. It is noteworthy that larger displays were made at the two preceding meetings, yet on each occasion the air was intensely cold, and there were piercing north-east winds. The explanation will probably be found to be that many exhibitors are holding back, preferring to make a display at the next meeting, when the Society's annual meeting of Fellows will also be held. If this prove to be so it is a pity, because on the occasion of the annual meeting it has frequently happened that there have been more exhibits than could be conveniently displayed, whilst the attendance is much larger than usual, consequently more room is required that visitors may move about without discomfort. None of the Committees had much work to do on this occasion. The Orchid Committee recommended three Awards to novelties, and the Floral Committee an Award of Merit to a Kniphofia from Mr. Bennett-Poë.

In the afternoon there were upwards of forty new Fellows elected to the privileges of the Society; and a paper on "The Blue Nymphæas," by Mr. James Hudson, V.M.H., was read by Mr. A. Dean. This related in detail the methods of cultivation which have been afforded these plants in the garden of Mr. Leopold de Rothschild, Gunnersbury House, Acton, where their requirements have been studied fully, and their cultivation practised with marked success.

Floral Committee.

Present: W. Marshall, Esq. (Chairman); and Messrs. C. T. Druery, H. B. May, R. Dean, G. Nicholson, G. Reuthe, C. R. Fielder, Chas. Dixon, W. Howe, J. A. Nix, Chas. Jeffries, R. C. Notcutt, R. W. Wallace, E. H. Jenkins, W. J. James, C. Blick, and Geo. Paul.

A pretty though small collection of alpine plants was shown by Mr. A. R. Upton, The Guildford Hardy Plant Nursery, Millmead, Guildford. Iris alata was in bloom, also Saxifraga Burseriana major, Pulmonaria rosea, Galanthus Elwesii, Erica mediterranea, &c.; and there were nice pieces of Veronica saliciornioides, V. cupressoides, Saxifraga longifolia, S. valdeosis &c.

Messrs. R. Wallace & Co., Kilnfield Gardens, Colchester, showed the following Irises in bloom:—I. Tauri, I. histrioides, I. Histrio; also Adonis amurensis (from the open), and excellent specimens of Galanthus Whittalli.

Messrs. Barr & Sons, King Street, Covent Garden, London, W.C., exhibited forced Narcissus, also many varieties of Helleborus, and fine pans of Galanthus, Elwesii, Cyclamen Coum, Iris persica var. Tauri, &c. (Bronze Flora Medal).

Mr. H. Whateley, The Nurseries, Kenilworth, again showed blooms of the new white Chrysanthemum H. Whateley.

Three very fine seedling Hippeastrums were shown from the gardens of Lord Rothschild, Tring Park (gr., Mr. E. Hill). These were Rufus, a self coloured scarlet; Prince of Orange, a curiously mottled variety in which shades of scarlet and pink were combined; Edeokop, a flower with brilliant scarlet margin and white centre. Each plant bore four large flowers.

Mr. Jas. E. Lowe, Shrewley Nursery, Warwick, showed Chrysanthemum Warwick Beauty, a rose-purple sport from Princess Victoria; Mr. Ed. Lowe, a white sport from Framfield Pink; and Princess Beatrice, a blush sport from the same variety. Winter Cheer is another sport from Framfield Pink, and the richest coloured of them all.

A red and bronze coloured decorative Chrysanthemum named Christmas Glory, was shown by Mr. W. H. Dyer, Mitchett Nursery, Frimley, Surrey. It is a capital colour for so late a season.

Messrs. Hugh Low & Co., Bush Hill Park Nurseries, London, N., showed a group of double-flowered varieties of Rhododendron (Azalea) indicum, also forced Lilacs and other plants; Epacris, Acacia longifolia magnifica, Lilies of the Valley, Toxicophlœa spectabilis, and choice stove and greenhouse plants (Silver Banksian Medal).

Messrs. H. Cannell & Sons, Swanley, Kent, made a very large display with single-flowered varieties of Primula sinensis, the plants furnishing one side and a half of one of the long tables. Most of the plants were in 5-inch pots, and had just expanded their first flowers.

Some of the principal varieties were Pink Queen, Cannell's White, H. Cannell (bright crimson), Swanley White, Pink Perfection, of much deeper colour than Pink Queen; Swanley Blue; The Sirdar, with very large flowers of rich rosy-carmine colour; Eynsford White; Swanley Giant, rosy-purple colour; Sparkler, intense crimson. Many of the "pyramidalis" varieties were very pretty, as Triumph, rosy-purple; alba plena, Miss Irene, Red Rover, Mrs. H. Cannell, white; Lady E. Dyke, &c. (Silver Flora Medal).

Awards.

AWARD OF MERIT.

Kniphofia (Tritoma) longicollis.—A pure yellow-flowered variety, shown by J. T. BENNETT-POE, Esq., Holmewood, Cheshunt (gr., Mr. Downes).

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the chair); and Messrs. Jas. O'Brien (Hon. Sec.), de B. Crawshay, R. B. White, F. A. Rehder, H. Ballantine, J. Douglas, E. Hill, J. Cypher, W. A. Bilney, W. H. Young, W. Boxall, H. A. Tracy, W. H. White, J. W. Potter, and H. Little.

There was a small show of Orchids, Messrs. SANDER & SONS, of St. Albans, securing the only Silver Medal awarded. Their group contained good Phaius × Norman, P. × Marthæ, and a new bronze and rose form of P. grandifolius, Lælio-Cattleya × novissima, a new hybrid between L. anceps and C. Gaskelliana; Cypripedium × barbato-Rothschildianum, a distinct hybrid of dark colour and good form; a very dark variety of C. × Tautzianum, C. × Lord Derby, and other hybrid Cypripediums; Lælio-Cattleyas, &c., and the very fine new Zygopetalum × Sanderi (see Awards).

The Right Hon. Lord ROTHSCHILD, Tring Park (gr., Mr. E. Hill), showed cut spikes of Phalænopsis Schilleriana and P. Stuartiana, the former having twelve branches and eighty-eight flowers, and the latter thirty-eight flowers, both from plants which have been many years in the collection (Cultural Commendation).

J. COLMAN, Esq., Gatton Park (gr., Mr. W. P. Bound), showed three plants of Dendrobium × Wiganianum, the variety called "Gatton Park" having finely-formed flowers, cream-white, tinged with lilac.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. Gilbert), sent Cypripedium × Miss Alice Wallace, C. × Miss Edith O'Reilley, and C. × Euryades Gilberti, all good flowers; also a fine Cattleya Percivaliana.

NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman), sent a spike of Odontoglossum × leochristyense "Oakwood variety," very dark in colour, and finely marked. Flower very pale yellow, nearly covered with rich purplish brown blotches.

J. BRADSHAW, Esq., Southgate (gr., Mr. Whitelegge), again showed his beautiful large blush-white Lycaste Skinneri "Enchantress," which exhibited the peculiarity of having formed twin pseudo-bulbs from one growth; L. S. Lady Gladys, a much smaller light form; L. S. alba, with two flowers on a spike; also the new Odontoglossum × Bradshawiæ, mentioned in the list of Awards.

J. T. BENNETT-POE, Esq., Cheshunt (gr., Mr. Downes), showed Ipsea speciosa superba, with three spikes of fine yellow flowers (Cultural Commendation); and Odontoglossum Edwardi.

Messrs. HUGH LOW & Co., Bush Hill Park, staged a group in which were Cattleya Trianæi Lowiæ, a large blush-white, with orange disc; C. T. Cleopatra, and C. T. Atalanta, both fine distinct flowers; a remarkably large and richly coloured C. Percivaliana, several Cypripedium niveum, C. × Lawrenceo-Charlesworthi, fine well-flowered Lælia anceps Sanderiana, and the pretty Cynorchis Lowii.

J. FORSTER ALCOCK, Esq., sent a form of Cypripedium insigne near to Bohnhoffiauum.

Awards.

FIRST-CLASS CERTIFICATE.

Zygopetalum × *Sanderi* (Perrenondi × Mackaii), from Messrs. SANDER & SONS, St. Albans.—A very fine hybrid, and a great improvement on Z. Perrenondi, which it resembles in some respects. Inflorescence stout, upright; flowers wax-like, and fragrant. Sepals and petals apple-green, heavily blotched with blackish-purple. Lip large and expanded in front, the basal and central part bearing velvety lines of purple, merging into the glowing rosy-purple colour of the front portion. The white ground colour shows through at the base of the lip, and the blending of the colours is very fine.

Odontoglossum × *Bradshawiæ* (Harryanum × Andersonianum), from J. BRADSHAW, Esq., The Grange, Southgate (gr., Mr. Whitelegge). A very handsome new hybrid, of equal beauty with the best O. × crispo-Harryanum, but with the colours arranged almost exactly as in O. × Andersonianum. Sepals and petals very pale yellow, the inner halves beautifully marked with purple, the petals showing a white basal area, surrounded by purplish spots as in O. × Andersonianum. Lip large, white, spotted with purple on the basal half, and with a yellow crest.

AWARD OF MERIT.

Cypripedium × *J. Wilson Potter* (Harrisianum superbum × Charlesworthi?), from J. WILSON POTTER, Esq., Elmwood, Park Hill Road, Croydon (gr., Mr. W. H. Young).—A beautifully-formed flower, with all the parts broad and well rounded, the dorsal sepal being especially fine. The whole flower is of a warm purplish-rose tint, the veining being the darker, and the margin of the dorsal sepal pure white. Both in form and colour there are few hybrid Cypripedes to compare with this pretty novelty. The Orchid Committee considered the plant probably of the parentage given above, although it bears very slight resemblance to C. × Bingleyense (Harrisianum × Charlesworthi).

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq., in the Chair; and Messrs. H. Balderson, W. Bates, Geo. Woodward, H. Eslings, S. Mortimer, A. Dean, H. J. Wright, H. Markham, C. G. A. Nix, J. Willard, F. Q. Lane, O. Thomas, A. H. Pearson, H. Somers Rivers, W. Poupart, and J. Jaques.

Mr. GEO. WOODWARD, Barham Court Estate Gardens, Maidstone, showed some excellent fruits of the valuable late Pear, Passe Crassane, which Mr. Woodward describes as the very best Pear for so late a date. His fruits were above medium-size, short, with great circumference, and possessing very rich flavour. The variety has been already awarded the Society's First-class Certificate (Cultural Commendation).

Messrs. SUTTON & SONS, Reading, again showed specimens of their Superb Early White Broccoli, which becomes ready for table as early as the month of January.

Messrs. T. RIVERS & SON, Sawbridgeworth, made an interesting exhibit of ripe Oranges, showing about a score of varieties. These were called by names the appropriateness of which was not apparent, as Sustain, Bittencourt, Dulcissima, White Achilles, Egg, Botelha, Silver, Brown's; also more distinct ones, and better-known varieties, as Jaffa, thin-skinned St. Michael's Maltese Blood, the Myrtle-leaved variety of Citrus aurantium, Tangierine, the Grape-fruit, and White Lemon (Citrus Limonum) (Silver Knightian Medal).

WEYBRIDGE HORTICULTURAL AND GARDENERS'.

JANUARY 13.—Mr. R. Dean gave a lecture before the members of this society, in the Public Hall, on the "Florists' Tulip," illustrating the same by means of coloured diagrams. There was a good attendance of members, who seemed much interested in what was to them a novel subject.

Dealing briefly with the history of the Tulip, which it is believed was introduced to Western Europe about the middle of the sixteenth century, it was mentioned that Conrad Gesner, after whom it was named, first saw the Tulip in 1559, in a garden at Augsberg. It was in 1600 that the first roots were imported from Vienna to England. Some cultural notes, and a description of a Cheshire Tulip show, with some amusing reminiscences, brought the lecture to the close.

A hearty vote of thanks was passed to Mr. Dean, and a wish expressed that it would not be long before he again visited Weybridge as a lecturer.

LINNEAN: General Meeting.

JANUARY 15.—FRANK CRISP, Esq., Treasurer and V.-P., in the chair.

The meeting having been made special for the consideration of certain proposals, as announced from the chair on December 18 last, and communicated to the Fellows by circular letter of December 31, the Rev. T. R. R. STEBBING, F.R.S., moved:—"That this meeting, approving of the alterations in the constitution of the Linnean Society of London, as shown in the printed statement circulated, hereby authorises the Council to take the necessary steps to obtain a supplementary Charter embodying the said alterations, and thereafter to prepare revised bye-laws in accordance with the provisions of the new Charter." This was seconded by Dr. J. REYNOLDS GREEN.

The first alteration, adding the words "without distinction of sex" to the existing paragraph on p. 5 of the Charter as printed, was put from the chair, and the result of the ballot was declared as follows:—In favour, 54; not in favour, 17; and the motion was thereupon declared to be carried.

The motion in favour of the adoption of the remaining alterations, as shown in the printed statement in the hands of the Fellows, was then put, the votes being:—In favour, 43; not in favour, 3. Thereupon the Chairman declared the remaining alterations carried.

CARDIFF AND COUNTY HORTICULTURAL.

JANUARY 19.—Mr. A. M. Bailey presided over the fourteenth annual general meeting of this Society on the above date, a large number of members and friends being in attendance. The financial statement for the past year was read and unanimously adopted, and showed a balance of £125 3*s.* 2*d.* in hand. The date of the next show is fixed for July 22 and 23. The Rt. Hon. Lord Windsor, was elected President for this year; Dr. De Vere Hunt, Chairman; Mr. Alec. W. Morris, Vice-chairman; and Mr. H. Gillet was re-elected Secretary.

There will be an exhibition of honey; and also of paintings and photography, of horticultural subjects only.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

JANUARY 20.—The first meeting in the New Year was held at the Sunflower Temperance Hotel, George Street, on the above date, when the Chairman, Mr. W. J. Simpson, introduced Mr. J. Deans, who read an interesting paper on "Nature's Seed-sowing."

The lecturer, in his opening remarks, referred to the well-known authorities on the subject, such as Darwin, Lubbock, &c., and their theories of the many ways which Nature has of distributing the seeds of plant life over the earth, attributing the methods of dispersing the seeds to four, viz., by water, wind, birds, and animals, and explaining the methods of each in detail.

A discussion by the members followed the reading of the paper.

The next meeting will be on February 3, when Mr. Thos. Bunyard will take for his lecture the subject of "Garden Root Crops."

REDHILL, REIGATE AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

JANUARY 20.—The fortnightly meeting of this Association was held at Mutton's Hotel, Reigate, on the above date, Mr. Bound in the Chair. After the usual business and election of new members, the names and winners of the Society's Certificates were awarded. The lecturer on this occasion was Mr. McLeod, gr. at Dover House, Roehampton, who gave a discourse upon "Carnations." A discussion followed the reading of the paper. *Jno. W. B.*

DEVON AND EXETER GARDENERS'.

JANUARY 21.—The opening meeting of the spring session was held at the Guildhall, Exeter, on the above date, the subject to occupy the members being "A Demonstration of the Various Methods of Preparing Cuttings." Mr. Luscombe, general foreman at Messrs. Veitch's Nurseries, occupied the chair. Mr. S. Radley opened the discussion with a short paper on the advantages of a practical knowledge of the best methods of preparing cuttings of various kinds of plants. Examples were given of the manner of preparing leaf-cuttings, and of those cuttings on which a bud had to be retained. Cuttings of Chrysanthemums, Carnations, Pelargoniums, Azaleas, Heaths, Laurels, and other subjects, were prepared by the senior members present, and the reasons given for a preference for this or the other method being adopted by the operator.

A more valuable demonstration has not been given before the society, and evidence of its appreciation was shown by the very large attendance of members.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 22.—There was a very small meeting on this date, and only a few plants were placed before the Committee.

S. GRATRIX, Esq., Whalley Range (gr., Mr. Cypher), exhibited Cypripedium × Hindeanum (C. Godefroyæ × C. insigne var. Harefield Hall var.), a beautiful hybrid, showing its parentage plainly (see fig. 26, p. 53, in last week's number). It is a fine, handsome flower of good substance, and ranks among the best hybrids of C. insigne (First-class Certificate).

Cypripedium × "Samuel Gratrix No. II." was also shown by the same grower. It is a pretty flower, and was granted an Award of Merit. This fine Cypripedium is much in the way of a fine form of C. ×

Leeanum, but with a magnificent dorsal sepal (Award of Merit).

JOHN COWAN & Co. staged a fine group of Lycastes, principally varieties of L. Skinneri; one or two varieties being worthy of notice (a Bronze Medal was awarded for the group).

Mrs. ARDERN, Stockport, exhibited a fine form of Odontoglossum crispo-Harryanum, Cypripedium × Thompsonianum, and Cypripedium × microchilum (Vote of Thanks). *P. W.*

CHESTER PAXTON.

THE opening meeting of the present session was held in the lecture theatre of the Grosvenor Museum on Saturday, when the President of the Society, Captain MacGillycuddy, lectured before a large and appreciative audience. Taking as his subject, "Some National Flowers," Captain MacGillycuddy, in his introductory remarks, said that flowers had been adopted as national emblems from very early times. Flowers were also identified with families, such as the Violet with Bonaparte, and the Primrose, which had a political significance. They were also associated with days, as the Snowdrop, sometimes called the Purification flower, and the Fair Maid of February; the Crocus, called St. Valentine's flower; and the Daisy, the Marguerite, because it appeared about St. Margaret's Day.

Turning to the nations, the lecturer commenced with Japan, which had for its national flower the Chrysanthemum, so called from its being the "flower of gold." The Emperor of Japan had one particular Chrysanthemum which was 10 feet high, and 15 feet long, having attained the proportions of a forest tree. It was trained to represent a Chinese junk, and had 4 000 individual blooms. The Empress had a flower of her own, namely, the Cherry-blossom. Germany had adopted as her national flower the blue Cornflower, which was the favourite flower of one of the German Emperors. France at war had chosen the Lily, the "Fleur-de-Lys." It was extremely interesting to Englishmen, because up to the time of William III. it was borne on the arms of England, in memory of the time when the King of England was the King of France. Switzerland had the Edelweiss; the United States of America had selected a beautiful stately flower called the "Golden Rod." Turning next to the great British family, the first country he mentioned was Egypt, the wonderful land of the "Lotus," which was a most beautiful flower. India had the Palm as its national plant; Canada had chosen the Maple, which in the autumn of the year looked beautiful in its red and golden glory; Australia had still to find a national flower. Wales had adopted the Leek; why she had done so he had been unable to discover. Scotland was represented by the Thistle; the Shamrock, Trifolium repens, was the national plant of Ireland. The connection between England and the Rose was very simple.

Mr. N. F. Barnes moved a vote of thanks to the lecturer, and threw out the suggestion that an appropriate national flower for South Africa would be the Orchid [!], and the motion was carried amid hearty applause. An entertaining discussion was afterwards taken part in by the chairman, the lecturer, and Mr. G. P. Miln (Hon. Sec.).

LIVERPOOL HORTICULTURAL.

ON Saturday evening, Jan. 24, at the "Bear's Paw," Lord Street, the 16th annual dinner and social evening was held, and presided over by Geo. Gordon, Esq., V.M.H. There were about 120 present, which included all the leading horticulturists of the city and suburbs.

The principal toasts of the evening were the "King, Queen, and Royal Family," and "Liverpool Horticultural Association." In submitting the toast of the above Association, Mr. Gordon remarked on the perseverance and doggedness of societies in general, and how they had fallen to a very low ebb, and yet by the persistent efforts of a few persons they now held a prominent position in the horticultural world; as by the holding of their exhibitions, meetings, and discussions, a great amount of enthusiasm was circulated freely amongst the gardening fraternity and general public. He acknowledged that such societies as the Liverpool society had done a great amount of good, and yet doubted whether they had done all that might be accomplished; and to be successful in this sphere of work, they should be knit together by a bond of unity. He also mentioned the mischief that smaller societies in suburban districts sometimes occasion, the influence and support which is accorded them being detrimental to the parent society, and hoped that Liverpool was not troubled in this respect. Mr. Foster (Chairman of the Society), in responding, said they had several of these minor societies around Liverpool, and that if these were to amalgamate, Liverpool could hold exhibitions second to none in the Kingdom, and hoped that in future they would rally round the parent society.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

REPORT OF THE COMMITTEE FOR THE YEAR 1902.

THE committee have the pleasure to submit their annual report and statement of accounts, as audited, for the year 1902. They are thankful to be able again to congratulate the members and subscribers of the Institution on its satisfactory condition, and the continued progress it has made, as evidenced by the increased benefits they have been able to dispense to those who through misfortune, declining years, and other causes, have been forced to seek its aid.

At the commencement of the year 190 persons—103 men and 87 widows—were receiving £20 and £16 a year respectively, entailing an annual liability of £3,452. During the year seventeen of that number died—seven men and ten widows. Three of the men left widows, whose circumstances, after careful investigation, proved to be of such a nature as to warrant their being placed on the funds for the widow's pension of £16 a year, in accordance with the powers conferred on the committee under Rule III., 13, thus leaving at the close of the year 176 persons in receipt of permanent aid. The committee propose to increase this number by recommending for election this day fifteen candidates from a list of forty-six applicants, and also to ask the subscribers to confirm their action, graciously approved by their President, H.R.H. the Prince of Wales, in placing on the funds without election all those of the unsuccessful candidates—eleven in number—at the last election, *who had previously been subscribers to the Institution*, to commemorate the Coronation of their Majesties the King and Queen, patrons of the Institution, and as a thank-offering for the recovery of the King from His Majesty's recent severe illness. The total number of pensioners, therefore, on the funds will be 202, twelve more than on the corresponding date last year, and the largest number at any period in the history of the Institution. Whilst fully cognisant of the increased liability thus incurred, the Committee feel they will have the practical sympathy and support of every friend and well-wisher of the charity in their forward policy of assisting more of the unfortunate people whose cases plead with such pathetic urgency, and they strongly appeal to all their friends not to relax their efforts on behalf of this old and well tried work, which for sixty-four years has done so much for disabled and decayed horticulturists, or their widows, in their time of need.

The Committee are glad to be able to report that the anniversary festival dinner, which was held in May last, under the presidency of His Grace the Duke of Marlborough, K.G., proved most successful; and they desire to place on record their very grateful thanks to His Grace for his able and convincing advocacy of the claims of the Institution, which brought such a substantial addition to its funds. The Committee also express most gladly their indebtedness to the stewards, collectors, donors of flowers, the horticultural Press, and to other helpers, whose kind services and contributions were sincerely appreciated. They likewise gratefully acknowledge the services of the honorary secretaries of the several auxiliaries, which still continue to prove valuable adjuncts to the Institution.

During the year the following amounts have been received:—Reading and District Auxiliary (hon. sec., Mr. H. G. Cox), £117; Worcester Auxiliary (hon. sec., Mr. Percy G. White), £110; Bristol & Bath Auxiliary (hon. sec., Mr. G. Harris), £79; Devon and Exeter Auxiliary (hon. sec., Mr. W. Mackay), £33; and Wolverhampton Auxiliary (hon. sec., Mr. R. Lowe), £20.

The Committee have pleasure in reporting that in consequence of a large public meeting and concert at Liverpool, which was attended by the treasurer and secretary, as a deputation, an auxiliary has been inaugurated in that city, which gives promise of being very successful, and likely, under the able honorary secretaryship of Mr. Waterman, to render substantial assistance to the Institution.

To the gentlemen named above, and to other friends throughout the country who have helped forward the work, the Committee tender their best thanks.

The "Victorian Era Fund" and the "Good Samaritan Fund" are still a source of incalculable benefit.

From the first named fund £104 has been distributed amongst the unsuccessful candidates at the last election, who had been subscribers, and £120 has been given from the latter Fund to the remaining unsuccessful candidates, who were not subscribers, and to other applicants as temporary help in their distress and need. This latter Fund has been particularly useful in enabling the Committee to assist cases of a very pressing nature, to which, had it not been for this Fund, they must necessarily have had to turn a deaf ear. As the interest alone of the Fund is available—unless special donations are given unconditionally—the Committee's resources are limited, and they therefore again commend it to those who have the power to increase its usefulness.

With regard to the new rules which were adopted at the special meeting in January, 1902, the Committee are hopeful that they will prove satisfactory in their working, and to the advantage of the Institution. On the whole, general approval has been expressed with the alterations, which were inevitable under the circumstances. A suggestion which has been made from several quarters to increase the number of votes at elections to annual subscribers of twenty years' standing and upwards is receiving the careful consideration of the Committee.

Unfortunately, the committee have to deplore the loss by death of many valued friends and supporters during the past year. Amongst others who have thus passed away may be mentioned G. F. Wilson, Esq., of Weybridge, a vice-president; Mr. E. W. Cathie, of Simpson's, an old subscriber; and T. F. Peacock, Esq., of Gray's Inn, who for many years had acted as honorary solicitor to the Institution, and whose services on many occasions will be gratefully remembered.

They are glad to be able to state that W. A. Bilney, Esq., of Fir Grange, Weybridge, and Temple Chambers, Temple Avenue, has kindly consented to take the place of Mr. Peacock, and to help the charity by acting as its honorary solicitor.

In conclusion, the committee most earnestly ask for renewed effort on behalf of this national horticultural charity. After to-day's election, there will be thirty-one applicants left on the list who are appealing for aid, and of this number several are totally blind. To help them an increased income is needed, and whilst being thankful beyond measure for the generous support accorded to them in their work in the past, the committee plead most earnestly for further aid to enable them to extend the benefits of the charity to those who are so much in need of them.

H. J. VEITCH, Chairman.
GEO. J. INGRAM, Secretary.

[The above report was presented on the occasion of the election of pensioners, on Thursday, January 22, 1903, reported in our last week's number. ED.]

(*For Balance Sheet, see p.* xv.)

THE BRIGHTON AND SUSSEX HORTICULTURAL.

THE Annual General Meeting of this Society was held in the Imperial Hotel, Brighton, on Thursday, the 15th inst., when Mr. T. Billing, a Vice-President, presided over a large attendance of members. The President Alderman J. Colman, J.P., wrote regretting his inability to attend, and expressing a wish to present a Silver Cup as a prize in a Carnation competition this year.

When the balance-sheet was submitted, a considerable increase in the receipts and a substantial reduction in the expenses was noted, last year closing with a credit balance of £268 7*s.* 11*d.*

The shows for the present year will be held on April 21-22, August 25-26, and November 3-4.

Obituary.

GEORGE RAWLINGS. — This veteran cultivator, exhibitor, and raiser of Dahlias died on the 17th inst. at his residence, Pen-y-Van, Whitebrook, Monmouth, in his eighty-third year, and was buried in Llandogo Churchyard by the side of his wife, whom he outlived seven years. One of his sons, Mr. William Rawlings, was with him at the time of his death.

It is not until 1851 that I can find any mention of Mr. Rawlings. At that time he appeared to be in business as a florist in Bethnal Green, then a semi-country district. He was one of the original members of the National Floricultural Society, and was in all probability, with the exception of Mr. William Paul, the only remaining one of the band of 207 members when the society was formed in 1851. In that year he came before the public as a raiser of Dahlias, and at the meeting of the National Floricultural Society on Aug. 21, he obtained a label of commendation for Dahlia Dr. Frampton, a pale ground flower edged with purple, which was said at the time to be a variety of considerable promise, and which at the following meeting of the Society was advanced to a First-class Certificate of Merit. It obtained other certificates that year. With it Mr. Rawlings exhibited Sir F. Thesiger, a lilac self; Louisa Glenny, deep yellow; Defiance, blush-white; and Rose of England, rose-pink. Dr. Frampton and Sir F. Thesiger both became highly popular varieties, the former especially. At the outset of his career as a raiser, Mr. Rawlings set a high ideal before him, and he followed it to the end, as can be seen in the high position attained in the present day by his latter-

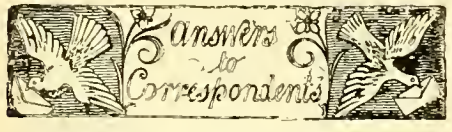
day seedlings. Lilac King, one of Mr. Rawlings' seedlings, obtained a First-class Certificate in 1852.

The growth of London in the direction of Bethnal Green, and the erection of factories, gradually absorbed the available land suitable for nursery purposes, and in course of time drove Mr. Rawlings to Romford, and here he carried on a successful business as a Dahlia specialist, and raised a large number of varieties, several of which occupy a high place among the most popular exhibition flowers. Mention may be made of Arthur Ocock, Clara, George Gordon, George Rawlings, Harrison Weir, Harry Turner, John Bennett, J. T. West, Mr. G. Harris, Mr. Glasscock, Mrs. Glasscock, Mrs. Shirley Hibberd, Queen of the Belgians, R. T. Rawlings, Shirley Hibberd, T. J. Saltmarsh, Thos. S. Ware, William Dodds, and William Rawlings. All of these possess the best qualities of form, petal and centre; and a few of them took a high position in Mr. E. Mawley's Dahlia audit of this year. R. T. Rawlings is one of the very best show Dahlias in cultivation. In his day, Mr. G. Rawlings raised a large number of seedlings. His commencement and his close as a raiser were alike glorious. His name appears as a subscriber to the funds of the National Dahlia Society in the annual report just issued. Mr. Rawlings left Romford some years ago, leaving his business to the care of his sons, and lived in retirement at Whitebrook up to the day of his death. *R. D.*

LAW NOTES.

FAILURE TO SUPPLY PELARGONIUM CUTTINGS ACCORDING TO AGREEMENT.

At the Lincoln County Court on Wednesday, the 21st inst., Geo. Taylor, Bracebridge Low Fields, market gardener, sued F. M. Marks, Littlehampton, Sussex, for £13, for return of money, and for damages caused through defendant failing to deliver Pelargoniums within a certain time. Mr. Epton was for the plaintiff, and explained that the plaintiff ordered 5,000 Jacoby Pelargoniums, and sent a cheque for £5, together with 13*s.* 6*d.* which he owed for samples. Defendant wrote acknowledging the receipt of the cheque, and stating that the Pelargonium cuttings would be sent in the course of a day or two. The cuttings were not supplied. Plaintiff said he estimated the damages at from £15 to £20. His Honour gave judgment for the plaintiff for £13.



*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

BLACK CURRANT: *D. B.* Yes; certainly.

BONE SUPERPHOSPHATE: *P. G. W.* Is an enduring dressing for grass-land, but not so quick in its action as some other manures. It is quite safe, and may be used without the basic slag if you wish to do so. The latter is a source of phosphoric acid, an almost indispensable ingredient in soils.

CEMETERY SUPERINTENDENT: *X.* We know of no such book.

CENTAUREA NIGRA, WHITE VAR.: *Horthorn Loon.* Centaurea nigra (Knapweed), a white flowered variety is sometimes found growing wild, but we are in doubt as to its constancy.

CLIMBERS FOR BACK WALL OF STOVE TO FLOWER, IF FLOWERING, FROM OCTOBER TO APRIL: *X.* Argyreia splendens, Jasminum Sambac, Combretum racemosum, Bignonia cherere, Begonia nitida, Euphorbia jacquiniæflora, Ipomœa Horsfalliæ, Passiflora racemosa. At the cooler part, Luculia gratissima, and Plumbago capensis. Evergreens for leafage only, Philodendron laceratum, P. Simsii, and Monstera deliciosa.

COLOUR OF THE MEN'S SHIRTS AT KEW: (!) *Horthorn Loon.* A bluish-grey.

COMMUNICATION: *H. Mitcham.* The meeting having occurred so long ago, we must decline to publish the report of it, more especially in the crowded state of our columns at the present time.

CRICKETS, TO CATCH: *A. G.* An answer was given to an enquirer in our last issue, p. 64, which exactly fits your case.

CYPRIPEDIUM × DEYOPE: *J. F. A.* The name was that under which it was shown, and one that was unquestioned by the Committee. The flower did not resemble C. × Bingleyense, and reputed to be from the same parents, viz., Harrisianum superbum and Charlesworthi.

DEODAR: *W. C. Leach.* The article appeared in our issue for January 30, 1897, p. 82.

DWARFED JAPANESE TREE BOUGHT AT AN AUCTION SALE: *A Constant Reader.* The tree may be hardy in this country, or it may be rather tender and need winter protection. You should ascertain its English botanical name and let us know, and we would then tell you what is the right way of proceeding. Annual slight top-dressings of mild manure mixed with stiff loam should be afforded yearly, first removing as much of the old soil as will admit of this being done. Keep it moderately moist at the root till growth begins. Stop all run-away shoots, and afford open air treatment in the summer.

EMPLOYMENT AT KEW: *H. K.* You must in the first instance make your wishes known to Mr. W. Watson, the Curator.

GARDENING BOOKS FOR S. AFRICA: *C. A. P.* South Africa is a big country, with a great variety of climates, altitude, &c. We would advise the young gardener to take out standard works, such as the *Dictionary of Gardening*, published by Upcott Gill, 170, Strand, W.C.; the *Fruit Manual*, by the late Dr. Hogg, published at the office of the *Journal of Horticulture*; *Villa Gardening*, by Hobday, published by Macmillan & Co., London; the *Orchid Manual*, published by Messrs. Williams & Son, Victoria Nurseries, Upper Holloway, N.; Kemp on *How to Lay Out a Garden*, published by Messrs. Bradbury, Agnew & Co., 10, Bouverie Street, Fleet Street, London, E.C., if it can still be obtained.

GOOSEBERRIES: *New Reader.* Excellent varieties are Green Walnut or Langley Green; Crown Bob or Warrington, reds; Whitesmith, white; Keepsake or Bright Venus, yellows. These are chosen for good flavour.

INFLUENCE OF THE MOON ON THE WEATHER: *X.* We are so gorged with matter that we cannot find room for your obliging communication, with which we entirely agree; but popular errors are an unconscionable long time dying.

MODEL OF A GARDEN: *C. C.* If you do not make a copy of an existing Italian flower garden, you must rely on your imagination in the creation of the model; but if we may judge by the questions you put to us, you are unlikely to take honours in the competition. Messrs. Cannell & Sons, Swanley, Kent, would furnish plans on application.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*A. F.* Apparently a variety of *N. pseudo-Narcissus Telamonius plenus.*—*H. S. M.* Euphorbia jacquiniæflora.—*R. S.* should not address the Publisher on such a matter, it has nothing to do with advertisements, or the sale or purchase of the paper; 1, next week; 2, Cupressus Lawsoniana; 3, variety of Thuya orientalis; 4, Asclepias curassavica; 5, Diplazium pubescens; 6, Melia Azedarach.—*W. B.* 1, Abies brachyphylla; 2, Abies grandis; 3, Tsuga canadensis; 4, Thuya occidentalis, var.; 5, Thuya occidentalis, var.; 6, Juniperus communis, var. It is a risky proceeding to name Conifers without their cones, but we do our best.—*M. O. R.* 1, Cupressus (next week); 2, Thuya dolabrata; 3, T. gigantea = Lobbi of gardens; 4, Cupressus, we cannot tell which without the cones; 5 and 6, Thuya gigantea.—*J. S.* Seed vessels of Araujia albens.—*Kelway & Sons.* Unable to name with certainty; send when in flower.

PALM-LEAF: *T. Fletcher.* The dark linear lines are a species of scale insect, which may be destroyed with petroleum emulsion, applied with a soft brush or bit of sponge.

PARSNIPS DISEASED: *Amateur.* Kindly send some roots for our inspection, as we are unable to afford an opinion unless this be done.

PÆONIES: *H. B.* The herbaceous species are propagated by division, one or two buds being left on each piece of root, as is done with Rhubarb. This is usually performed in February, just previous to growth taking place. The roots may also be grafted (wedge or cleft) with other varieties, this operation being performed in pots, in mild heat, under glass. No Pæony that has been much disturbed will produce flowers for three years afterwards. Shrubby Pæonies are usually grafted on stocks of the Moutan Pæony, or seedlings of it, the operation being likewise carried out under glass in the spring; almost any ordinary method is suitable. Pæony-seeds may be sown when ripe in the autumn, and treated cool—not sown out-of-doors. Make use of sandy loam and peat only.

SEEDLESS GRAPES: *Enquirer.* There is one variety, the Black Monukka, which is generally destitute of seeds. Attempts have been made to cross this with others, but with no advantage. The dried Sultana Grapes and the so-called Currants have no seeds. The proportion of people who die from appendicitis from such a cause is infinitesimally small, as compared with the numbers who eat pudding.

SEEDLING ZONAL PELARGONIUMS: *T. Knight.* The flowers sent being, as you say, seedlings, do not in all likelihood quite resemble those of the parent plants. They are fine, large blooms of good tints, and you may give them any names you like.

SIZES OF ENGLISH FLOWER-POTS: *G. de B.* Thimbles 2 inches in diameter, and 2 inches in depth; thumbs, 2½ by 2½ inches; sixties, 3 by 3½ inches deep; forty-eights, 4½ by 5 inches deep; thirty-twos, 6 by 6 inches deep; twenty-fours, 8½ by 8 inches deep; sixteens, 9½ by 9 inches deep; twelves, 11½ by 10 inches deep; eights, 12 by 12 inches deep; sixes, 13 by 12 inches deep; fours, 15 by 13 inches deep; twos, 18 by 14 inches deep.

TRICHINIUM MANGLESII: *H. J.* The plant may be in the possession of Mr. W. Thompson of Ipswich.

COMMUNICATIONS RECEIVED.—J. R. J.—H. R. H.—Countess C.—Sir J. D. H.—S. T. D.—A. W.—J. R.—J. R. G.—L. M.—A. B. R.—H. G., St. Petersburg—L. B., New York—F. S.—F. J. F.—H. H. J. J., Calcutta.—G. A. (see remarks in present issue).—H. S. R.—F. W. B.—H. J. E.—Prof. Sargent, Boston—McM., Inverness—Mrs. Lemon—W. Fyfe—G. R.—W. G. P.—E. C.—C. O.—Rus in Urbe—G. Hall—G. Hill—A. S. T.—G. F. Parker—C. T. D.—S. C.—A. D.—G. G—R. D.—S. G. B.—W. K.—J. M.—T. H. S.—A. W.—P. W. T.—G. A. F.—E. H.

(For Markets and Weather, see p. xiv.)

Group of Agaves, etc., in the Victoria Park, London.

Bradbury, Agnew & Co., Ld., Printers, London and Tonbridge.

THE
Gardeners' Chronicle

No. 841.—SATURDAY, FEBRUARY 7, 1903.

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WINTER FLOWERS IN SUNNY CLIMES.

SHELTERED by its protecting range of mountains, forming a barrier against the icy blasts and inhospitable snows of the north, and fertilised by an abundant and enriching sunshine, the favoured villages of the Riviera bring forth their annual harvest of colour and fragrance. That natural forcing ground, Grasse, I suppose may be reckoned the chiefest among these southern French flower regions, with its bountiful supplies of sweet-scented Violets, its multi-coloured Anemones, and its delicate Tea Roses, but each of the above and many other blooms may be found not only in spots especially cultivated for such, but in wellnigh every garden-plot and terrace-walk throughout the length and breadth of that narrow but comprehensive strip familiarly known as "The Riviera." With the exquisite surroundings of the many featured Monte Carlo as its centre, the whole of this region may be said to abound with flowers all the winter through, from the humble little Pansy and the beauties aforenamed, to the luxuriant and gorgeous Bougainvilleas and the feathery Acacia.

In mid ocean between Europe and Africa, and within a days' voyage of France, there exists another beauty spot in the form of the romantic Island of Corsica, or rather and more particularly its chiefest pearl, the peerless semi-tropical Ajaccio. Here, at any rate, all seems peace, from the still and transparent bays looking like motionless lagoons, and the glorious Orange-trees which meet the gaze at every point, to the *dolce far niente* and picturesque appearance of the native with his patois of Italian and the dark tint of his Berber or Arab blood plainly betraying his origin. Here too, may be seen many beautiful specimens of the Acacia in fullest bloom, like a mazy cloud of brimstone, barely stirring in the delicate touch of the light air. Fine large trees, for the most part revelling in their sympathetic bed of decomposed granite, they form a grand and becoming ornament among beauties of other attractive charms. In one lovely spot that I well remember on the hill slopes surrounding a beautiful white château, the dainty Neapolitan Violet was largely produced, and doubtless exported to our and other colder climes; as also the Narcissus, of which I saw several large stretches, and embracing some three or four different varieties.

Perhaps more striking still in many ways is the seductive display afforded on the further shore of the Mediterranean in sunny Moorish Algiers. Exquisitely displayed in terraced walks at varying levels, the white villas seem for the most part clad as it were with a transparent mantle of veiled green, interspersed with some rich or bright toned colour, and adorned at their base and flanks with masses of brilliancy harmoniously blending their shades into one perfect vista and dream of delight. Very fine indeed is the aspect presented by many dwellings from the blood-coloured flower-leaf of the showy Bougainvilleas. The Roses here are of quite bewildering shades and varieties, and enjoy greater immunities from the occasional wintry touches which their sisters on the near shore now and again have to contend against.

Much earlier, indeed in mid-winter, but in an almost tropic region, to wit, on the plain of the Jordan, I have plucked in plenty the vivid scarlet Anemone with which the sandy sward of this erstwhile fertile district is sometimes strewn, especially if the "former rain" has been plenteous in its supplies. The flora upon the mountains of the wilderness of Judæa is also very beautiful and varied, but necessarily somewhat later than that found in the depressed flat and heated stretch between tiny Jericho of the present day, and the mystic lifeless Dead Sea.

And here I must begin to turn my steps and attention northwards once more, though still under (to us, at any rate) southern skies. Parts about Naples and other auspicious districts in Italy and Sicily produce amongst other flowers prodigious supplies of the Parma and Neapolitan Violet. Those conversant with Rome and Florence will readily recall certain nooks and points of vantage at street corners and bridges where the somewhat plaintive cry of "Violetti, Violetti," "Dolce Rose," is a very familiar one. Truly do these welcome harbingers of spring bring much consolation and hope to the passer-by in the somewhat sombre winter streets, even of "la bella Italia;" for the idea that the sun is ever spreading her radiance over the land is a sadly erroneous one. Rome Florence, and even Naples can on occasion out-Herod Herod for cold and damp dreariness combined.

In closing, I cannot refrain from putting in a claim for notice to a more northern but yet very delightful domain; that at the entrance to the peaceful Rhone valley, and on the lower slopes and valleys above Montreux, and the further end of the lake of Geneva. Here, though of course rather later, but while the winter months are still upon us, many grateful blooms break forth in the open, wild, and entirely uncultivated ground. Thus the increasing warmth of the sun brings through and unfolds the elegant Crocus, yellow, white, or mauve; and even where snows have possessed the surface of the upland meadow or hillside, hardly has it melted before the little welcome bulb appears in bloom. Close following upon it in patches may now and again be found a long-stalked, pure white flower of a kin with our homely Snowdrop, but with several "drops," if I remember aright, upon one stem. Companions in plenty by the end of February and early March appear in the shape of gorgeous displays of Daffodil, Fritillaria, the exquisite blue Gentian, and the seductive little Hepatica, of the same colour but of a deeper hue. The wooded parts are carpeted, indeed, with the latter, both blue, white, and pink; while roaming whether through the yet sleeping vineyards, as also on the hill-slopes, the Gentian, of several sizes and shapes, rejoices the eye and heart alike. Dainty little Pansies about the same time spring up among the Olive-trees, as if seeking for a fair share of attention to their modest charms. The climax perhaps is reached when the Narcissi unfold their fragrance, and mingle their beauties in whole fields of flower among the fast-growing grasses, as they advance in sweetness and stature towards the early-matured spring crop of these mountain valleys. *J. A. Carnegie-Cheales.*

NEW OR NOTEWORTHY PLANTS.

TWO NEW PLANTS FROM CHINA.

Mr. E. H. Wilson, who has collected so largely in China for Messrs. James Veitch & Sons, recently brought specimens to Kew of two curious plants, of which the firm have living examples. As he remarked, one looks like a Hydrangea with alternate leaves; and the other he regarded as a Honeysuckle, though it presents some distinct deviations from the many morphological variations displayed by the numerous species of the genus Lonicera. It is a shrub having opposite, simple leaves, very similar to those of some species of that genus; and also resembling those of the smaller kinds of Philadelphus, except that they are not rough. But the peculiarities are in the structure of the flower and fruit. The small flowers are borne in clusters at the ends of short, lateral branchlets, and they are almost always in pairs, with the ovaries of the pairs consolidated or confluent. The ripe fruit, as well as its exceedingly slender stalk, is thickly beset with long, brown, spreading bristles, or thick hairs, and crowned by two calyces, the whole being about a third of an inch long. A fully-developed fruit shows in cross section two three-celled, semi-circular components, which are completely consolidated, so that the section looks like that of a six-celled fruit. But the two calyces at the top proclaim its true character. These little calyces

consist of a very slender tubular portion, surmounted by five equally slender spreading lobes. The tube is thickly clothed with spreading hairs, as long as itself. The body of the fruit also comprises two or three (perhaps sometimes four) relatively thick ribs of corky tissue, which seem to be transformed, adnate bracteoles, as they terminate in free tips, not much thicker than the bristles of the fruit. From this structure there is no doubt that the shrub in question is—

KOLKWITZIA AMABILIS,*

or a closely-allied species, for it does not agree in several particulars with Gräbner's description. Whether we have to deal here with a genus distinct from Lonicera is questionable; but I think it will prove deserving of generic rank, though not altogether on the grounds advanced by the author, who states that its twin flowers are not on the same level, one ovary being attached laterally to the top of the other. I find that when the two are perfectly developed, they are on the same level; but the fruit is usually imperfect, two out of each set of three cells being undeveloped, and sometimes one whole set of three, and two of the other set, are suppressed. The corolla, I may add, is unknown, but I should guess from the size of the calyx it must be a very small body, and it, together with the stamens, may afford further characters of generic value. Mr. Wilson procured this shrub from the mountains of Hupeh, at an elevation of 10,000 feet, so there is no doubt of its hardiness, should it prove sufficiently ornamental to establish itself in our gardens.

* Engler's *Bot. Jahrbücher*, xxix., p. 583.

The other plant is a new species of—

CARDIANDRA,

which I will call C. sinensis.* Siebold and Zuccarini founded the genus (*Flora Japonica*, i., p. 119, tt. 65, 66) on a Japanese species, C. alternifolia, which was in cultivation in 1866, and is figured in Regel's *Gartenflora*, t. 486. It is too early to say anything about their value as ornamental plants at present, but the new species looks like a plant that will improve under cultivation. They are perennial herbs, having creeping rhizomes, much like those of the Solomon's Seal, throwing up a single stem at the end each year, with, in old plants, a crowd of sockets of previous years' stems behind them. Briefly, they are herbaceous Hydrangeas, with alternate leaves and numerous stamens; and the larger, sterile flowers of C. sinensis in the circumference of the inflorescence, differ from those of C. alternifolia, in consisting of two heart-shaped sepals, combined or free from each other at the base. The name, Cardiandra, was given in reference to what I believe to be a mistaken view of the shape of the anthers, and I may add, that the petals are strongly imbricated, not valvate, as described by the authors of the genus. Kew possesses specimens of Cardiandra sinensis from the Ningpo Mountains, collected by the Rev. E. Faber in 1888, and Mr. E. H. Wilson's specimens, n. 2426, from Western Hupeh, which were collected in 1901. *W. Botting Hemsley.*

* C. *sinensis*, Hemsl., species nova; *C. alternifoliæ* simillima, differt imprimis forma calycis florum sterilium. Herba perennis, more Polygonati multiflori rhizomatosa, caulibus erectis simplicibus, 1—2-pedalibus. Folia alterna, bifaria, petiolata, papyracea vel fere membranacea, ovato-lanceolata vel oblongo-lanceolata, cum petiolo 4—6 poll. longa, argute serrata, dentibus setulosis, acute acuminata, basi cuneata, utrinque præcipue secus venas parce strigillosa, interdum ferruginea. Flores difformes, in corymbum compositum terminalem pedunculatum dispositi, graciliter pedicellati, bracteis bracteolisque parvis (angustissimis vel fere setiformibus. Corymbus 3—4 poll. diametro. Flores steriles exteriores, ½—1 poll. diametro, pauci, interdum nulli; calycis lobi 2, inæquales, cordato-rotundati, basi connati vel liberi. Flores fertiles circiter 3½ lin. diametro; calycis dentes minutissimi, rotundati, persistentes; petala valde imbricata, orbicularia, concava, circiter 1½ lin. lata; stamina circiter 20; capsula glabra, subglobosa, circiter 1 lin. diametro, imperfecte trilocularis stylis 3 coronata, polysperma.

FIG. 35.—ODONTOGLOSSUM × BRADSHAWLE.

ODONTOGLOSSUM × BRADSHAWIÆ.

THIS handsome hybrid, shown in fig. 35, was awarded a First-class Certificate at the meeting of the Royal Horticultural Society on January 27. It was shown by J. Bradshaw, Esq., The Grange, Southgate (gr., Mr. Whitelegge), and is a hybrid from O. Harryanum and O. Andersonianum. The flowers were described in our last issue as being of equal beauty with the best O. × crispo-Harryanum, but with the colours arranged almost exactly as in O. × Andersonianum. The sepals and petals are very pale yellow, the inner halves beautifully marked with purple; the petals showing a white basal area surrounded by purplish spots, as in O. × Andersonianum. The lip is large, white, and spotted with purple on the basal half, and having a yellow crest.

BULB GARDEN.

THE FORCING OF DAFFODILS.

WHILE the early forcing of Daffodils offers no difficulties to the large market-grower and the best informed of gardeners, there are others who are not successful with these bulbs under artificial conditions of culture. The lack of success can frequently be traced to experimental tactics. Albeit, the bulbs themselves, or the source of supply, are invariably blamed for this, when, as a matter of fact, it may be readily discovered by the unsuccessful cultivator himself. It is due to the manner in which the work has been done. Upon one occasion my opinion was asked concerning a batch of bulbs in a hot propagating-house. Going to view them, to my surprise I found the boxes and pots containing an admirable lot of Narcissus Horsfieldi stood upon the bare boards or slabs that covered the pipes. This was the work of an excellent gardener, but the forcing of Daffodils baffled him. On making enquiry, I found some advice had been given by one who was supposed to know how to force these bulbs in the Channel Islands, and I further learnt that this valuable lot of bulbs had been brought into this great heat, and following the advice given, they were at once consigned to the bottom-heat bed. The lot having been set fully three weeks, and the owner thinking it time that with such heat at disposal a start should be made, communicated with the writer. The whole lot was ruined, so far as early flowers were concerned. In another instance a large lot was in August or September planted in the side beds under glass, the houses having had an early summer crop of Cucumbers; in this case the bulbs had been planted nearly as deep as when planted in the open, and the beds being on the level of the path, the bulbs were naturally below this line. At this level the bulbs were unaffected by the house temperature, which at most was only that of a cool greenhouse. But because an early start was made, it was argued that they were bound to come early. It is very remarkable, too, that in these very opposite instances very little water had been afforded to the bulbs, and at the end of the year in the second case the outgrowth from the bulb was less than in the

case of others in the open ground planted some weeks later. But the fact that a glass roof kept away all the rainfall, which during the rooting period of the bulbs is often considerable, had been entirely overlooked. In the end, much of the top soil was removed, so that the bulbs might receive more warmth from the air. The crop was very late, and the flowers very indifferent, also a large number refused to expand. Many other failures could be enumerated from causes widely different to the foregoing, but these will suffice.

In the forcing of Daffodils a liberal supply of moisture is an absolutely essential item. It is only necessary to point to the improvement of the flowers of the Daffodils when placed in water a few hours to recognise the importance that moisture is to them. Next to soil moisture, a damp or constant humidity is very desirable. Under ordinary culture in pots and boxes, a thorough soaking of the soil should take place twice a week. From the time the foliage is half-grown, and until the scape is fully grown, the supply of water may be increased one-third. From the moment of the scape attaining its full height, to the bursting of the bud, a vigorous application from the syringe is an urgent necessity. One day of arid condition of the air at this juncture may ruin a crop of perfectly-grown plants in a few hours. This is especially true where the plants are in pits, or in small, low, much-confined houses. The same thing is less likely to ensue in lofty structures. In Nature and in the open garden, rain, wind, the rustle or friction of bud with leafage, is of untold good in breaking open the bud, or assisting thereto. A very dry, arid state of the air, or that excessive wetting of overheated pipes, if retained in the house, and which latter seem to find favour with the young and indiscreet, are both responsible for much so-called blindness. Daffodils will not be steamed into flower, but in a temperature of 50° to 60° may be developed to perfection. *E. Jenkins, Hampton Hill.*

CYPRIPEDIUM × J. WILSON POTTER.

The striking hybrid Cypripede, illustrated in fig. 36, was thought by the Orchid Committee to be from a cross between C. Harrisianum superbum and C. × Charlesworthi, although it bears a slight resemblance to C. × Bingleyense (Harrisianum × Charlesworthi). It is a beautifully formed flower, with all the parts broad and well rounded, the dorsal sepal being especially fine. The whole flower is of a warm purplish-rose tint, the veining being the darker, and the margin of the dorsal sepal pure white. Both in form and colour there are few Cypripedes to compare with this pretty novelty, which was awarded the Royal Horticultural Society's Award of Merit, when shown on January 27 by J. Wilson Potter, Esq., Elmwood, Park Hill Road, Croydon (gr., Mr. W. H. Young).

Fig. 36.—CYPRIPEDIUM × J. WILSON POTTER.

CULTURAL MEMORANDA.

LOBELIA CARDINALIS AND OTHERS

of the perennial section, may be increased by division, or raised from seed. When raised from seed, I much prefer to sow the seed early in the new year, so as to allow plenty of time for the young seedlings to make nice plants before putting them out; and have found the seed to germinate more regularly in a temperature of 55° to 60° in the beginning of the year, to that of a higher temperature later in the season. In all cases of raising plants from seed, and especially that of which takes several days to germinate, sweet fresh soil should be employed, and water sparingly supplied for some time; otherwise the soil may become sour, and fatal to young seedlings, &c. The varieties of cardinalis will be found exceptionally useful for the herbaceous borders; and when planted in masses, or intermixed with other suitable plants, have a very imposing effect. *H. Markham, gr., Wrotham Park.*

Early Broad Beans.

Most persons like Broad Beans in early summer, a season not abundantly supplied with choice vegetables; and if the Beans are gathered whilst the seeds are tender and easy of digestion, the piquancy of their flavour is much relished. Of the Early Mazagan, the one variety which English gardeners usually grow, there are several strains, varying in the height of the haulm and in earliness of podding. The pods are slightly flattened, and larger than a large horse or field Bean. The seeds are grey, and in this respect are not so nice-looking as the small green July Bean, which is also somewhat later. The Dwarf Fan, or Cluster, which bears erect pods in twos and threes, the seeds quadrangular, thick, and bulging; Beck's Green Gem Bean is a capital early variety, with small, dark green seeds to the number of four in a pod. This and the Dwarf Fan can be readily forced in the same manner as Peas in frames. These dwarf Broad Beans are useful catch crops, or for intermediate cropping, as being of short growth, the plants do not throw shade on adjoining crops.

These Beans should be gathered for consumption when fully grown and young, and before the eye has become black. When taken at an earlier stage they have a bitter taste. *F. M.*

Antirrhinums.

These may be considered hardy, but on more than one occasion have I failed to winter young plants raised from seed sown in the open in July and August. But when sown at that time, taken up and planted in shallow boxes, and then stood in a somewhat dry airy position under glass, and where damp and frost is partly excluded, these plants make very useful stuff for planting out early in spring. There are a goodly number of useful varieties, both in regard to colour and height, which if sown during the present month in a little warmth, and duly attended to as regards water, pricking off into other boxes or small pots, and properly hardened prior to transferring them to the beds or borders where they are intended to flower, that will be found exceptionally useful where these flowers are appreciated, and make a brilliant display till late in the autumn. *H. M.*

GARDENING UNDER GLASS.*

(Continued from p. 50)

AIR.—"The respiration of plants does not differ either in its method, or in its object and significance, from that of animals." *Kerner.*

From the moment when germination commences in the seed till the death of the plant, air is necessary to its life. When the supply of air is insufficient or impure, the plant suffers. Breathing goes on day and night, and, as with animals, it is the free oxygen of the atmosphere that is necessary to the plant's existence. Aquatic plants obtain their supply of oxygen from that absorbed by the water, as fishes do. Respiration is most active whilst growth is vigorous. Kerner likens it to a machine which requires more fuel the greater the results required from it. If fuel is wanting or not present in sufficient quantity the machine stops, or does not perform as much work as it should be capable of doing. It is exactly the same in living plants. If the respiratory materials are absent, respiration is discontinued, and the plant dies.

We are told that a root can never have too much air, but often has too little. In the open air the supply of fresh air to plants presents no difficulty, but under glass it is different. Usually ventilation is considered only in relation to temperature. If the air inside a house is too warm, either from sun-heat or the hot-water pipes, the ventilators are opened; but the supply of fresh air to the plants is generally overlooked. It must, however, be evident from what has already been stated that this is wrong. The effects on the health of plants of atmospheric impurities may be seen in the houses at Kew after a severe fog. It is not the vapour of the fog that does the mischief, but the impurities held in suspension in it. A few hours of yellow fog are sufficient to cause the leaves of many plants to wither and fall off, and to blast the flowers and buds wholesale. Cultivators who have had no experience near London are apt to belittle our efforts here. Many gardeners have come to Kew direct from a garden where they grew certain plants exceptionally well, but have failed to repeat their successes here. Generally, their failure has been due to the impurities of the atmosphere at Kew, with which they had not reckoned. It is certain that the purer the air inside our plant-houses, the healthier the plants will be.

The best methods for affording a continuous supply of fresh air to plants in houses and frames are simple, and easily applied. There need not be much if any loss of heat. Generally, the air is let in through passages beneath the hot-water pipes.

If I can succeed in convincing you that plants must have fresh air at all times, you will easily find means for providing it. I said in my last paper that it is in the manipulation of ventilators, blinds, heating apparatus, and watering-pots that the careful cultivator obtains success. All the appliances may be of the most approved kinds, but if carelessness in these essentials is permitted, failure must be the result. Generally, a plant-house should be ventilated on precisely the same lines as a man's house, avoiding rushes of air, sudden changes, and draughts; at the same time admitting sufficient to maintain buoyancy and freshness.

LIGHT.

"The first thing in the morning, when the first ray of sunshine falls upon a plant, the 'protoplasts' begin to work in their little laboratories, decomposing carbonic acid, and producing from it sugar, starch, and other similar compounds; and it is not till the sun sets that this work is suspended, and the influx of carbon-dioxide stopped till the following morning" *Kerner.*

The influence of heat, air, and water on growth and health is very much the same in the case of plants as of animals. Light, however, is of even more importance to plants than to animals. Light is the life of plants; without it they are unable to form growing material from the food supplied by the roots and leaves; moreover, they may be said to lose flesh in consequence of the exhalation of carbon-dioxide and aqueous vapour when light is absent. Deciduous plants, and those with tubers, bulbs, or fleshy roots, will live for a considerable time in darkness when they are more or less dormant; directly, however, they begin to grow and form new leaves, they must have light. If they grow and form leaves in the dark they do it by the aid of the reserve material stored up in them, and therefore may be said to be living on their own fat.

When the light is feeble very little work of the nature of growth can be done; the work increasing with the light until the maximum is reached.

Plants vary in their capability to endure light. For some, direct sunlight is injurious; whilst others enjoy the fiercest glare, and between these extremes there are many gradations. The nature of the plant must be understood before we can decide the amount of sunshine that is good for it. The growth of plants in the open air and exposed to full sunshine is always much more satisfactory than that made in houses more or less shaded.

Given good glass, the right kind of ventilation, and a due regard to temperature, the plants we grow in houses would generally grow better and be more satisfactory in every way if less shading were used. As I have said, we must not overlook the nature of the plant, its condition with respect to age and health, and the purpose for which it is intended. The supply of water to the roots would necessarily require to be in accord with the other conditions, and of course the temperature would have to be watched. No conditions could be worse for plants generally than those afforded by a draughty house, the pots all exposed to the drying influence of hot, dry air, and the sun beating down on the leaves. Many houses are so badly constructed that it is next to impossible to keep any plants in them healthy. When designing our plant-houses, we do not pay sufficient attention to the principles of light, air, and heat, in their relation to plant-growth. I would repeat that every plant should be provided with all the light that its nature will enable it to bear. Plants are asking for it when their leaves turn from the shade to the light. Shading is too often resorted to, to save labour, and not to benefit the plant; with the blinds down practically all day, the plants require less attention than they would do if the blinds were up. The quality of the glass used for the roofs of plant-houses should be of the best—that is, it should be quite clear, and free from flaws or knots, otherwise much harm may be done by burning. *W. Watson.*

(To be continued.)

* Paper read before the Kew Mutual Improvement Society, January 5, 1903, by Mr. W. Watson, Curator.

CHINESE CONIFERS.

KETELEERIA DAVIDIANA.*—The first species of this genus was that originally made known by Fortune. It was at one time considered a true Abies, or Silver Fir; but the description by Professor Pirotta of the male flowers, which were produced on the famous tree in the nurseries of Signor Rovelli at Pallanza, coupled with anatomical data furnished by Bertrand and Van Tieghem, supply ample evidence of the correctness of Carrière's opinion, that the genus Keteleeria, in which he proposed to include Fortune's tree, is a valid one. Mr. Kent, in *Veitch's Manual*, ed. 2 (1900), p. 487, associates this species with the Douglas Fir in a proposed new genus Abietia; but the arrangement of the male flowers, the dehiscence of the anthers, the nature of the pollen, and the position of the cone, are all different from what obtains in the Douglas Fir.

The leaf-structure is slightly different in Keteleeria from that of Abies and Pseudotsuga, and more so from that of Picea or Tsuga. The structure of the leaf in K. Davidiana is remarkable for a group of large, colourless cells near the angles of the leaf, which probably afford storage for water.†

The male flowers of Keteleeria, first described by Pirotta in *Bull. Soc. Tosc. di Orticultura* (1887), p. 263, are in umbels, quite unlike the solitary arrangement in Abies and Picea or Pseudotsuga; and it is very remarkable that a similar arrangement occurs in Cunninghamia, in Pseudolarix, and in Ginkgo—all Chinese or Japanese genera.

For some time K. Fortunei was the only species known, but the researches of Henry, Delavay, the Abbé David, and others, have brought to light at least two, and perhaps more, species, one of which, K. Davidiana, of Beissner, we illustrate (p. 85) from specimens sent home by Mr. E. H. Wilson to Messrs. Veitch's nurseries at Coombe Wood. K. Fortunei is tender in this country, but K. Davidiana, coming as it does from the mountains of western and central China, where it was discovered in the first instance by the Abbé David in the mountains of Szechuen, may prove more robust.

K. Davidiana differs from K. Fortunei in its leaves, which are obtuse, and grooved on the upper surface, so that the prominent midrib is concealed. In K. Fortunei the leaves are acutely pointed, not grooved on the upper surface, but with the midrib very prominent on both surfaces. The cones are larger, narrower, and more elongate, more cylindric in form than in K. Fortunei, and with the edges of the scales rolled back so as to show the tip of the wing of the seed. The cone-scales, both in this species and in K. Fortunei, do not always fall away completely from the branch as they do in Silver Firs, but the cone detaches itself above the base, leaving a few of the basal scales remaining on the thickened branch, much as happens frequently in Pinus

* KETELEERIA DAVIDIANA, Beissner, *Handbuch der Nadelholzkunde* (1891), p. 424, f. 117; Masters, "Genera of Taxaceæ and Coniferæ," in *Journ. Linn. Soc.* (1892), xxx., p. 33, where other bibliographical references are given.
=*Abies Davidiana*, Franchet, in *Nouv. Archiv. du Museum* (1884), t. 113; Masters, in *Gardeners' Chronicle* (April 9, 1897).
Pseudotsuga Davidiana, Bertrand, in *Ann. Sc. Nat.*, 1874, xx., p. 87.

† See Mast. in *Gard. Chron.*, April 9, 1887; and Van Tieghem in *Bull. Soc. Bot. France*, 1891, p. 412.

ponderosa. The individual scales do not fall away so completely from the central axis as those of the Silver Firs (Abies) do.

The germination of K. Davidiana, which I had the opportunity of observing at Kew in 1889, resembles that of some species of Podocarpus in the circumstance that the embryo plant has but two cotyledons. The resemblance of the adult leaves of K. Fortunei to those of Podocarpus has already attracted attention.

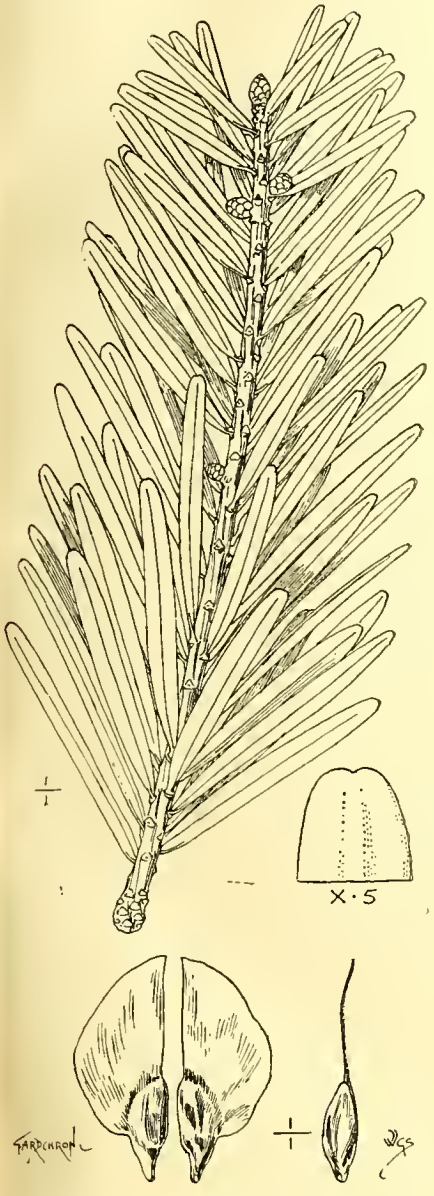

FIG. 37.—FOLIAGE AND SEEDS OF KETELEERIA DAVIDIANA.

The original tree of K. Fortunei was found in the vicinity of a Chinese temple near Foo-Chow, a circumstance which led the writer to infer that the tree might have been introduced there, as at that time the tree had not been discovered in a wild state. But Mr. F. B. Forbes obligingly pointed out in a letter addressed to me, that the very fact that any given tree is found growing around a temple is looked upon as the strongest proof that it belongs to the indigenous vegetation which the Chinese have been busied for ages in destroying for fuel and house-building (see Hance in *Journal of Botany*, 1870 & 1878, p. 7), reserving often for religious or superstitious reasons those that grow in the vicinity of their temples. The fact that some of these trees, e.g., Cryptomerias in Japan are in avenues, shows that they were designedly planted and may not necessarily have been indigenous to the particular district in which the temples stand.

FIG. 38.—KETELEERIA DAVIDIANA, A CHINESE CONIFER: CONE AND FOLIAGE OF REAL SIZE. COLLECTED BY MR. E. H. WILSON.

Since Fortune's time, K. Fortunei has been found by Dr. Hance, and later on by Mr. C. Maries, who found it in great numbers on the coast ranges of Fokien. See Kent in *Veitch's Manual*, ed. 2, p. 486.

There is no information at present forthcoming as to the relative value of the timber of the several species of Keteleeria, but as to their handsome appearance we have the warm testimony of Fortune. *M. T. M.*

PREPARING FOR TRANSPLANTATION.

"SLOW and sure," is a safe motto for those to follow who attempt the transplantation of trees and shrubs of a large size, or, even of a dubious character for well-doing after that operation. For centuries the barbarous expedient was adopted of cutting back tops to equalise the roots destroyed in removing trees from one place to another, and perhaps the practice is not yet quite extinct. It was, I know, practised by the late Mr. Wills, and was in his younger days advocated by him. Details of these old-fashioned methods are, however, of little interest. Suffice it to say, that about a century ago the then Lord Fitzhardinge made a break from principles then

current, and successfully initiated the system of cutting-in the roots to a reasonable distance from the bole, meanwhile allowing the subjects operated on to remain two or three years to recover before transportation was finally effected. Robert Monteath, at one time in the service of George the Fourth, was an early convert to the system, but he courted failure to some extent by removing his subjects too soon after surgical operations. From the same cause, the elder McNab had several failures with the trees and shrubs which were transferred from the old to the new Botanic Gardens, Edinburgh, in 1822. But as a whole, that very bold proceeding exercised a vast influence for good on the gardening community of the period.

For my own part I have never known a judicious application of the principle to fail, and have repeatedly seen its value exemplified. The most striking example of the difference resulting consequent on the carrying out of this very simple expedient, occurred in the thinning of a group of very large and handsome "Golden Queen" Hollies. Some were prepared by root pruning two years previously to removal, and were shifted successfully, without exhibiting any after bad effects. Then it was thought that a further depletion of the plants would be an improvement, and the removal was made at once without any preparation, with complete failure as the result. The money loss alone in this instance, if the plants could have been replaced, would have been considerable; but their value was, as in the case of all fine examples of this nature, beyond price. Not long ago some Quercus Ilex, that had been lined-in closely together as little plants ten years previously, were wanted to complete some planting. The roots of the several plants were run through and through each other, and as the case is with evergreen Oaks always, there were no fibrous roots that could be secured close to the stems. As time was important, a trench was taken out along each side the line of trees and within a foot of the stems, all the roots being severed in the process, and then those pushing downwards were cut across. Once new roots had pushed freely, these were also cut close back, and immediately new growth had recommenced the trees wanted were transplanted, and quite safely. I have an Arbutus to remove that could not be transplanted successfully without cutting the roots well back. Two plants are growing rather close together; both were large specimens in 1880, when they were cut to the ground by the severe frost of that winter, so that they are practically trees of over twenty years growth with roots that have never been checked. To transplant either without first preparing the roots, would require more labour, and almost certainly the plant would not recover, whereas the treatment it will receive previous to attempting its removal, will ensure the tree looking as well as ever in a short time subsequent to removal. These are instances such as may be expected to occur in the experience of most, when the need of great care is absolutely necessary to ensure success. But, root-cutting is of, if not equal importance, at least of sufficient importance to establish it as a part of routine management whenever shrubs or trees that have been several years in the same position require to be transplanted.

The labour and care involved in preparation varies considerably, according to circumstances. For instance, a deciduous tree, such, for example, as a Crab or a Thorn that had been transplanted ten or twelve years previously, will be sufficiently treated by cutting at a distance of 2 feet from the stem and as deeply as possible all the roots that a sharp spade pressed down with the foot will reach. The same treatment will be suitable to Hollies, Portugal Laurels, or other evergreens that do not require a large ball. Manipulated at any time from now till May, these will be in perfect condition to remove in October, each with a nice ball of fibrous roots that will begin operations at once upon the soil of their new surroundings.

Larger specimens that require a ball of suitable proportions necessarily call for a greater preparation, and this work most often can be overtaken at the present season with little leakage of labour power, because weather unsuitable for garden labour presents no drawback for this. There are only a few points connected with these that need recapitulating. Perhaps the initial step with most people would be to mark off a circular space for the trench. The round, however, in this case is much less convenient than the square. A four-sided ball is easier to handle, and where it is necessary to apply boards in which to box the roots, the square is the only form possible. Whether the four sides can be cut at the one time depends (1) on the size of the subject, and (2) on the condition of the roots. It is in any case more proper to reduce the ball to the lowest safe proportions, than to make it so large as to be unwieldy. If it is considered to the advantage of the plant to prepare the ball on every side, the spade, which should be kept sharp in order to cut clean, must be used to cut the roots while they are still firmly held in the soil before taking out the trench. Any thick roots will be best cut with a pair of French branch-pruners, or if not too numerous may be allowed to remain for the present. Eighteen to 21 inches is sufficiently deep for a ball; but it is not necessary to cut quite through the bottom, though a portion certainly ought to be cut. In the case of subjects about which there is any dubiety, better cut two opposite sides and part of the bottom, rather than run any risk. The remaining portion may be cut in autumn, or any time convenient during the dull season, and the greatest care be taken to form the sides perfectly square. When the mass of soil to be moved is deemed larger than with the means at command can be managed successfully, the two last sides to be cut may be made a little nearer to the stem; even three inches make a palpable difference, and no bad effects will, as a rule, be felt by the tree. When the earth is returned to the trench, it can hardly be rammed too hard in. It would be a mistake to add any better material to the old, because while the whole proceedings are conducted on the principle of producing the life-providing feeders of the plant in a contracted space, we want these feeders to be of as "hardy" a nature as the soil will produce. *B.*

The Week's Work.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Stove Climbers require to be thinned annually, or growth becomes weak and flowers few. The shoots of Stephanotis floribunda, Dipladenia, Ipomœa, and Clerodendron Balfourianum, should be shortened back to well ripened wood. The last-named species when planted out is seldom devoid of flower, but being a strong grower the knife must be freely used once a year. Rondeletias should have the weakest wood cut out, and the strongest shoots shortened a little; while Allamandas and Bougainvilleas should be cut back to within a few buds of last year's pruning—indeed, the Bougainvillea is best treated similar to the Vine, i.e., spurring back close to the leading growths. The colour of the bracts is far more intense when the plant is grown in an intermediate or warm greenhouse than in the stove. Train the growths fairly near to the glass roof, and afford but little shade at any period of the year. After pruning the plants, keep them fairly dry at the root until growth starts afresh, when those in pots may be partially shaken out and repotted, and those planted in borders may be top-dressed after removing a little of the surface-soil. A compost of equal parts of fibrous loam and peat, with finely-broken charcoal, and some coarse silver or clean river sand, will suit all the species mentioned above.

Codiæums (*Crotons*).—Any unsightly or leggy plants should have their tops removed, cutting them close under to a leaf. The cuttings may be used for obtaining young stock, and if grown with single stems they make excellent plants for the decoration of the dinner-table. The cuttings, after preparation, need not be more than 3 inches in length. Insert them in thumb-pots, and keep them close to the side of the pots; use a sandy soil, and after applying water to the cuttings, place them in a propagating-box having a bottom-heat of 75° to 80°, the temperature of the house being 65° to 70°.

Cordylines (*Dracænas*).—The tops may also be removed from Dracænas that are become shabby, and afterwards rooted in small pots or in water, or cut the stem into pieces about an inch long, and place them in pans of sand; afford a good bottom-heat, but do not keep them too moist before the buds are well advanced. November is the best time to do this, but if the work was omitted then, it may be done now. D. gracilis and D. Goldieana are best propagated from side-shoots taken off with a "heel," such as start away from the main stem after it has been stopped.

Anthuriums.—The flowering section may now be repotted, first shaking away the old soil, and cutting off any dead roots. Leggy plants may have the rootstock shortened, but the surface or aërial roots should be preserved. Let the pots or pans be well drained, filling them about one-third with washed crocks. The compost should consist of two parts peat, lumpy and fibrous, and one-third fibrous loam; also coarse pieces of charcoal, and plenty of silver-sand. Keep the crown of the plant a little above the rim of the pot, and work the soil down among the roots with the fingers, making it moderately firm, and finishing off with a layer of fresh sphagnum-moss. Syringe the plants twice daily, and then little or no water at the root will be necessary for some few weeks. Afford them a light position in a temperature of about 60° at night, with a rise of 5° or 10° during the day.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Leaf-soil.—Orchid cultivators are not agreed respecting the use of leaves as a potting compost, and some having given it a trial, have discarded it entirely, and others, on the contrary, are well satisfied with the results obtained. In any case, a gardener should use it tentatively, making small experiments and noting results. I have made use of leaf-soil here for a year and a half, and so far I am satisfied with the growth and flowering of the plants. In a few instances, leaf-soil unmixed with other ingredients has been employed, and fresh sphagnum to cover it. It is, however, where a certain amount of chopped peat and sphagnum, with a good sprinkling of broken crocks and silver-sand has been added, that the results have been most satisfactory. It is difficult for the cultivator, when leaf-soil is alone employed, to decide when and how to apply water. The more porous materials permit water to pass away quickly, provided the drainage is abundant and in good order; whereas with leaf-soil, water does not pass off so quickly as is the case with the ordinary compost of peat and sphagnum, and the pots filled to three-quarters of their depth with crocks; consequently it should not be afforded so often. I would advise those cultivators of Orchids who reside in or near large cities, and in smoky localities, to use peat, &c., in the potting composts, so as to make them more porous, and in larger quantity than that given in this Calendar for each class of plants.

Cypripediums.—Some plants of this genus which flower in autumn and winter will stand in need of repotting, and among the first to receive attention will be C. insigne and varieties; C. Arthurianum, C. A. pulchellum, C. Leeanum, and the crosses of the above-named species. The same kind of treatment applies to all, for being of vigorous growth, and needing plenty of water at the root when the pots are filled with roots, pots of

a fair size, provided with perfect drainage, should be employed. A layer of clean crocks, not less than 1 inch deep, is sufficient, and over that another of sphagnum, in order to prevent the drainage from becoming choked. Our Cypripediums are placed rather lower than the rims of the pots, and the compost used in the potting consists of one-third good turfy loam, one-third lumpy peat, and one-third of equal parts of leaf-soil and sphagnum, together with some clean sharp sand and small crocks. When repotting a specimen plant in an 8 or 10-inch pot, let the material be very coarse; then the plant will not need to be repotted for three years, provided water is applied with care till such time as the new roots completely permeate the soil. The appearance of a newly-potted plant is improved if some heads of live sphagnum be pricked in all over the surface. In the case of choice or valuable varieties, one plant of each should be broken up each year to furnish duplicate plants, if this be considered necessary. The true characteristics of a Cypripedium are not observable till the plant has reached specimen size, and the flowers have come of the fullest size. The species and varieties named above succeed in the cooler part of an intermediate-house, and for the sake of convenience, in a group or groups together.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Peas.—Make a sowing of the early, round-seeded Peas on a south border or some warm sheltered position, on land suitably trenched and manured. No kitchen-garden crops are more commonly injured than Peas by being thickly sown, more especially the taller-growing varieties. The early sowings should be put in rather thicker than is necessary later on, owing to the failure of some of the seeds to germinate, and the ravages of rats, mice, birds, &c. A good rule to observe in drawing the drills is to have the between-space exceed the height of the plants by not less than 1 foot, and to draw them in the direction of north and south. The drill should be flat, and 6 ins. in width, and of a depth of 2½ to 3 ins. Before the seeds are sown, damp and roll them in red-lead powder. Some gardeners immerse the seeds in petroleum for about twenty minutes. Having sown the seeds, closed the drills, and made the ground tidy, let a number of traps be set for mice, which are sure to be troublesome. The Peas sown last month under glass for planting outside should be kept sturdy by affording air night and day when there is no frost, and water applied before the soil gets very dry.

Broad Beans.—Make a sowing of Longpod and Green Windsor to succeed the earlier sowing. Long-pod Beans for earliness, the Green Windsor for its good flavour. Let the seeds be dibbled-in at 2 inches deep and 6 inches apart in double rows drawn at 2 feet apart. The Beans raised under glass require the same kind of treatment as that bestowed on Peas.

Potatos on Hotbeds.—As soon as these are through the soil let the haulm be earthed up, and if the quantity of soil does not suffice for the purpose, some suitably prepared light soil that has been made as warm as that of the beds should be employed, carrying out the work during the middle hours of the day. Plant succession crops on hotbeds made up of tree-leaves and stable-litter. Radish seed may be sown between the rows, the roots being ready for use before the Potato haulm requires to be moulded up. When the proper conveniences are not at command for forcing Potatos, skeleton frames, spare lights from garden frames, or garden mats, may be made of use for raising a crop of Potatos. Choose a warm position, wheel on to the ground light turfy sandy soil, to the depth of 6 or 9 inches, and well mix together with the staple, and when levelled and made firm, plant it with the sets which have been put to sprout in cutting boxes or on shelves, breaking off all the sprouts excepting the three strongest; plant in rows 15 ins. apart, 12 ins. from set to set, and 6 ins. deep. If the soil in which the earliest Potatos are growing in pots is found on examination to be dry, afford tepid water in quantity sufficient to moisten the whole body of soil, but do not apply water in excess.

Turnips.—The crop of bulbs from seed sown at this date on a slight hotbed, or even in cold frames, will be ready for use in about twelve weeks. If the hotbed treatment be afforded, be careful to avoid a bottom-heat higher than 75°, or top-heat higher than 60°. Place light soil to the depth of 12 inches in the frame; after the materials have settled and the strong heat has passed off, make firm and level, and sow thinly in drills drawn at 9 inches apart. The bed of soil should not be more than 8 inches from the glass at the first, and if it sink much, the frame must be lowered. Keep the air moist, apply ventilation in fine weather, and sprinkle the frames when they are closed in the afternoon. Sutton's White Gem and Carter's Early Forcing are excellent varieties that mature quickly, and are of superior quality. Early Milan is likewise useful as a forcing Turnip, but is less quick in growth and good in quality than those.

FRUITS UNDER GLASS.

By T. H. C.

Figs.—The earliest trees in pots will now be forming their foliage, and the young embryo Figs will be getting larger. If the heat from the plunging material is declining, let more be added from the fermenting heap. Apply tepid water, with which a small quantity of weak liquid-manure or other fertiliser may be mixed, to the roots. In fine, bright weather syringe the trees at the least once daily, and otherwise maintain the air of the house in a moist condition, and slightly increase the temperature.

Orchard-house.—This structure contains the more hardy fruit trees planted out or grown in pots, and the fruit produced usually attains to a high degree of perfection. If heated, so much the better, not so much for assisting the ripening of the fruits, as to help in ripening the shoots of Peaches, Figs, &c., in a season like that of last year. If not already done, let no time be lost in getting all pruning and cleansing finished, and thoroughly cleanse the house according to the directions previously given in these columns. Trees planted in the borders, if they are in a good fruiting condition, should have the surface-soil removed down to the roots, replacing it with turfy loam, to which may be added a small quantity of bonemeal and lime-rubble, and apply a mulch of decayed stable-manure. Young trees which have made vigorous growth and shown no signs of fruiting, should have their roots pruned. This is an operation that is more properly carried out at the fall of the leaf than at this season, but rather than lose another season let half the mass of roots be pruned forthwith, and the remainder at some future time. Do not top-dress such trees, excepting with charred garden refuse, which may be lightly pointed in, and other means adopted to cause the roots to grow near to the surface.

Trees in Pots.—Remove the surface soil from amongst the roots with a pointed stick, and afford a top-dressing of rich compost, at the same time see that the drainage is in good order. The orchard-house being in readiness for starting should be placed under quite natural conditions, employing fire-heat only to exclude frost, and in dull weather when the trees are in flower to maintain a buoyant atmosphere. When the flowers expand, distribute the pollen with a rabbit's-tail, or sharply tap the branches, or syringing the trees at midday. The two latter methods are often resorted to where large numbers of trees are grown, but they are faulty, inasmuch as the beneficial effects of cross fertilisation are not so surely brought about. Where hive bees abound, they largely assist in this function, and should be kept in every large garden.

THE HARDY FRUIT GARDEN.

By CHAS. PAOE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

The Morello Cherry.—If the work of pruning and nailing of the Morello Cherry trees was not carried out in the autumn, let advantage be taken of mild days to carry it out forthwith. If any of the trees were infested with black aphides last year, loosen the branches from the wall, fasten them loosely together in bundles, and syringe them with some approved sort of insecticide, then proceed with the nailing. If disbudding was properly attended to last June, but little pruning will be required. Shoots which carried fruits last summer, and which were disbudded of all the shoots but one at the base of each, may be removed; and those which were pinched at the points, so as to induce the formation of fruit-spurs, shortened, leaving two or three buds. Young shoots may, in some instances, be fastened to the bare main branches. Let the young wood be laid-in evenly and regularly at about 4 ins. apart. When the nailing or tying is finished, remove the surface-soil, if much trampled upon, to the depth of 2 or 3 inches, and replace it with fresh soil, to which finely-broken mortar-rubble may be added.

Trees to be Grafted.—Apple and Pear-trees which are to be grafted this year should be headed back early this month; and in the case of orchard standards, from three to five of the best-placed branches should be retained, of about 18 inches in length, which will allow of 6 inches being removed from each at the time of grafting. The rest of the branches should be cut back to within 3 inches of the trunk, care being taken to smooth the cut surface with the pruning-chisel. If the branches removed are of a large size, a cut should first be made on the under-side with the billhook or axe, to prevent the wood or bark splitting off when cut with the saw. Grafted trees of last spring should have the grafts made secure against the wind by tying them to stakes fastened on to the branches.

Miscellaneous.—Take advantage of fine weather to expedite all planting and pruning operations, as severe weather may yet put a stop to operations of this kind for a time.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Bedding Plants.—Autumn-struck zonal Pelargoniums may now be shaken out of the soil in which they have been growing, and be either potted singly or boxed in fresh soil, i.e., loam, leaf-mould, and sand. The more convenient method where suitable accommodation exists is to pot them singly or in pairs, and afford a temperature of about 50°. In some gardens, fruit-forcing houses destitute of stages are utilised, and in these it is better to put the plants into boxes. The chief danger from doing this is the check given the plants when planted out; but I have observed that if an inch layer of rough Mushroom-bed materials, or some partly decayed tree-leaves be used for covering the bottom of the boxes instead of crocks, each plant can be readily cut out with a compact ball of soil and manure attached thereto, and no more check inflicted than when a plant is turned out of a pot. After potting or boxing, syringe the foliage lightly once or twice a day, but afford no more water before root activity begins, and a month later begin to harden off by degrees.

Dahlias.—If the stock of roots of any variety is not sufficiently numerous, put some old roots into boxes, cover with leaf-soil, and place on a gentle hotbed to produce shoots, any of which may be cut or broken off close at the base when about 3 inches high, inserted singly in sandy soil in 60's, and plunged in bottom-heat of 75° to 80°.

Verbenas, Alternantheras, and other Bedding Plants, which were started into growth a few weeks ago, will have shoots fit for making cuttings which may be struck and rooted as quickly as possible, so as to yield cuttings in their turn. These tops, the earliest cuttings, should be valued, as they are not liable to become stunted or diseased. It is astonishing how quickly a big batch of Lobelia speciosa can be worked up in this manner.

Seeds.—The hot-bed made up for raising East Lothian Stocks, &c., being now ready, sprinkle slaked lime over its surface and rake it in, in order to prevent loss of plants by damping off. Into this frame may be placed pots and pans and boxes containing seeds of Antirrhinum and Pentstemon. But for the fact that one cannot depend on getting Pentstemon from seed true to colour, this would be an ideal method of propagation.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, FEB. 7—Société Française d'Hort. de Londres meeting.

MONDAY, FEB. 9—Surveyors' Institute meeting; United Hort. Ben. and Prov. Soc. Com. meeting.

TUESDAY, FEB. 10—Royal Hort. Soc. Coms. meet; also Ann. Meeting of Fellows.

FRIDAY, FEB. 13—Roy. Gardeners' Orphan Fund, Ann. Meet. at Cannon Street Hotel.

SATURDAY, FEB. 14—Royal Botanic Soc. meeting.

SALES FOR THE WEEK.

MONDAY, FEBRUARY 9—
Herbaceous Plants and Bulbs, Lilies, Gladioli, &c., at Protheroe & Morris' Rooms.

WEDNESDAY, FEBRUARY 11—
Roses, Liliums, Begonias, Carnations, &c., at Protheroe & Morris' Rooms.—Roses, Shrubs, Lilies, &c., at Stevens' Rooms, at 12 30.

FRIDAY, FEBRUARY 13—
Standard, Dwarf, and Climbing Roses, Spiræas, Davallias, &c., at Protheroe & Morris' Rooms.—Imported and Established Orchids, at Protheroe & Morris' Rooms.—Specimen plant of Cypripedium Morganiæ at 2 P.M.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —39·1.

ACTUAL TEMPERATURES:—
LONDON.—*February* 4 (6 P.M.): Max. 50°; Min. 46°. *February* 5 (Noon): Dull, moist: 56°.
PROVINCES.—*February* 4 (6 P.M.): Max. 50°, W. Ireland; Min. 42°, N.E. Scotland.

"The Hall."

THE report of the Council of the Royal Horticultural Society to be presented, together with the statement of accounts, to the annual meeting on Tuesday, February 10, at 3 P.M., has been circulated among the Fellows. It is a very satisfactory document, and one that reflects great credit on the officials of the Society. It consists of twenty-five paragraphs, all of which at any other time would demand attention. At present, the main interest centres in the Hall.

What has the Council done to carry out the all but unanimous and strongly expressed wishes of the Fellows? What progress has been made towards the accumulation of the necessary funds? When may we look for the realisation of our hopes? Some answer to these questions may be found in the report. After diving into ancient history and narrating what took place in April, 1900, with reference to the proposal to purchase land at South Darenth for the purpose of a garden to replace Chiswick, the report goes on to say:—

"After considerable discussion a resolution was carried 'that the proposed site is not the best means of celebrating the Centenary of the Society,' and in supporting this resolution Mr. H. J. ELWES, F.R.S., unconditionally offered £1,000, if a New Hall were substituted for a New Garden as the celebration of the Society's Centenary. Mr. A. W. SUTTON, V.M.H., and Mr. N. N. SHERWOOD, V.M.H., also offered £1,000 each, and Baron SCHRÖDER a day or two afterwards offered £5,000 if a New Hall were adopted.

"After this Meeting the Council felt bound to carry out the manifest desire of the Fellows to build a permanent home for the Society as the Celebration of the Centenary, and a Committee was appointed to enquire into the possibility of securing a suitable site within the means of the Society.

"Relying on the already promised subscriptions, and the enthusiastic reception with which the appointment of the Committee had been hailed, the Council reported to a Special General Meeting, held on March 21, 1902, that a suitable site had been found in Vincent Square, Westminster. The utmost enthusiasm for the Hall prevailed at this meeting, which was attended by nearly 300 Fellows; 'the principle of building a New Hall' was 'accepted,' and the Council were authorised to take the necessary steps to enable the building to be opened in the year 1904,' a resolution embodying these words being carried with only three dissentients.

"The Council at once took 'the necessary steps to enable the building to be opened in 1904,' on the completion of the one hundredth year of the Society's existence. The site in Vincent Square was secured by Baron SCHRÖDER, on behalf of the Society, and after careful consideration, Mr. EDWIN STUBBS was requested to draw up plans for the buildings in accordance with instructions given by the Council. A subscription list has been opened, to which H.M. the KING and H.R.H. the PRINCE OF WALES, have been graciously pleased to subscribe, their subscriptions being accompanied by letters of full approval and encouragement. The sum subscribed up to the date of this Report going to press is £22,000, which the Council cannot but regard as a promising commencement. The total estimated cost of the New Hall and Offices is £40,000, inclusive of furniture and equipment. While the Council gratefully acknowledge on behalf of the Fellows the response they have already received to their appeal, they feel confident that there are very many Fellows, amateur and professional, who will desire to recognise the great and continuous advantages they receive from the Society, by liberally supporting the New Hall Fund.

"The Council are aware that the plans and elevation they have placed before the Fellows have been criticised. They desire to point out that they have purposely restricted expenditure on external ornamentation, in order to provide satisfactory internal accommodation; and that the architect has to comply with the restrictions and limitations necessary to meet the requirements of the ground landlords, the County Council, and other authorities.

"The Council desire to assure the Fellows that the provision of a New Garden has by no means been lost sight of. The Society's lawyers are in correspondence with those of the Duke of DEVONSHIRE, and negotiations for the surrender of the Chiswick lease are in progress, and they hope that these, when completed, will materially facilitate the acquisition of the New Garden."

So stands the matter. The site has, through the public spirit of Baron SCHRÖDER, been obtained, and cleared ready for building. The amount already promised is £22,000. In addition to this there is a surplus fund, which was destined from the beginning to be used for purposes of the Hall, and which might well be utilised to form part of the endowment to cover the ground-rent, and enhanced expenses of maintenance. The Society is now so financially strong, that its surplus on the year's working amounts to over £2,000. Surely never at any period was the Society so powerful, either in funds or in the number of Fellows. Surely, therefore, never was there a more favourable opportunity for realising the general desire of the Fellows for the creation of a home for the Society, which shall also be the headquarters of British horticulture. The iron is glowing hot; let us strike and strike again while it remains so. The plans submitted do not meet with universal approval—what plans would? Many of the objections raised to them can be met if sufficient funds be forthcoming. In the meantime, while by no means overlooking the æsthetic side of the matter, we are bound to place suitability to its purpose before appearances, and to remember that it is to general convenience and adequacy of the internal arrangements that we have to look rather than to an imposing façade.

His Majesty the KING and the Prince of WALES have shown their sympathy in the work in the most practical manner, several gentlemen, in addition to Baron Sir HENRY SCHRÖDER, have contributed substantial aid. Now it is for the Fellows in general to do their part. The nursery trade which derives, and ever since the establishment of the Society has derived, such benefits from it, should certainly be very largely and munificently represented on the subscription lists.

The horticultural societies throughout the kingdom should contribute according to their means. The special societies should feel it particularly incumbent on them to help in the good work, as some of them have already done.

All those who derive their living from horticulture should feel that they owe a duty to the profession which gives them bread, and contribute accordingly.

Lastly, the thousands of garden-lovers, the tens of thousands of those who delight in flowers and value the pleasure they afford and the lessons they teach, should tender their assistance.

The more large sums that are subscribed, the better; but these are not the only requirements. We want the mites of the masses also, and, for our own parts, we shall be happy to forward to the proper quarter any sums that may be entrusted to us, and to acknowledge their receipt in these columns. The urgency has become so great, and matters have progressed so far, that a Hall we must have. We may trust the horticulturists of the Empire to prove practically that which they have already asserted in words, that the best means of celebrating the centenary of the Royal Horticultural Society is by the erection of a properly constructed and duly endowed home.

KEW.—Signs of approaching spring were apparent even so early as the 30th ult. Hellebores, Hepaticas, Winter Aconites, and other early-flowering plants were in full bloom. Rhododendron Nobleanum × was expanding its flowers in the Rhododendron dell, and the very beautiful Prunus Davidiana was covered with its pinkish-white blossoms. Perhaps at no season of the year does the Bamboo-garden look to better advantage. The fresh green foliage is stirred by every passing breeze, and the pliant shoots bend before each gust with a grace and elegance that induces the belief that they enjoy the movement. As to the rock-garden, illustrated in our Supplement, go when one may, one is sure to find something of beauty and interest. The large foliage in the foreground is that of a Rodgersia.

ROYAL GARDENERS' ORPHAN FUND.—We would call the attention of our readers to the fact already announced, that the Annual Meeting of this charity will be held on Friday next, at Cannon Street Hotel, London, E.C., at 4 P.M. It is most gratifying to learn that the Committee propose to place upon the funds all of the twenty-four children applying for relief, by resolution. We hope that next year the support given the fund will be so liberal that a similar course will be possible. There is a proposal to amend the rules, so that the Committee may in exceptional cases have power to help the children until they are sixteen years of age, or two years beyond the time limited.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will take place on Tuesday next, February 10, in the Drill Hall, Buckingham Gate, S.W. The annual general meeting of the Fellows of the Society will also be held in the Drill Hall at 3 P.M., on the same date. At a general meeting held on Tuesday, Jan. 27, forty-eight new Fellows were elected, amongst them being the Countess FITZWILLIAM, and Baron de TEISSIER, making a total of 138 elected since the beginning of the present year.

"THE BOTANICAL MAGAZINE" for February contains coloured figures and descriptions of the following plants:—

Sanseviera grandis, J. D. Hooker, tab. 7877.—A supposed native of tropical Africa, but introduced into Cuba in the hope that the fibre it contains, which is of extraordinary strength, might be turned to commercial account. The plant is growing in the temperate-house at Kew, and has a tuft of broad, obovate, oblong, acute leaves 3 to 4 feet long, 6 inches wide, pale green, with transverse stripes of a deeper colour, and a central stalked raceme some 3 feet high of numerous regular, erect, funnel-shaped, greenish flowers, each about 2 inches long, the linear perianth-segments as long or longer than the narrow tube. As an ornamental plant, it has high claims on the attention of gardeners, and its cultivation would seem to present no difficulty.

Impatiens Balfouri, J. D. Hooker, tab. 7878.—A very pretty Himalayan Balsam, with lanceolate leaves and rosy-pink flowers. Royal Botanic Garden, Edinburgh.

Acidanthera candida, Rendle, tab. 7879.—An Iridaceous plant, native of east tropical Africa, with lovely symmetrical white flowers. It was imported by J. T. BENNETT-POË, Esq.

Astilbe Davidii, Henry, tab. 7880.—A very beautiful Spiræa-like plant, described and figured in these columns by Mr. HENRY. It was introduced to Messrs. VEITCH's establishment by their collector, Mr. E. H. WILSON.

Rhododendron brachycarpum, D. Don, tab. 7881.—A species which forms vast tracts in the mountains of northern and central Japan above the line of forests. The flowers are white, flushed with pink, the upper lobes of the corolla spotted. It flowered in June, 1902, in the arboretum at Kew. The glabrescence of the leaves and the colour of the flowers are variable.

"GARDEN FANTASIES."—Mr. and Mrs. ALBERT STEVENS have on view at the Leicester Gallery, Leicester Square, a collection of water-colour drawings, to which we desire to call the attention of our readers.

SCOTTISH HORTICULTURAL ASSOCIATION.—The first meeting for the session of the Scottish Association was held on Tuesday evening, the 3rd inst., at 5, St. Andrew Square, Edinburgh. The President, Mr. J. W. McHATTIE, occupied the chair, and there was a crowded attendance. We hope next week to be enabled to publish a part the President's address.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the Lecture Hall of the Institution on Monday, February 9, 1903, when a paper will be read by Mr. WILLIAM WOODWARD (Fellow), entitled "Some of the Difficulties which Present Themselves to the Architect and Surveyor Practising in London." The annual dinner of the Institution will be held at the Empire Hall, Trocadero Restaurant, Piccadilly Circus, on Friday, Feb. 20, 1903, at 7 o'clock precisely.

SOCIETY FOR THE PROTECTION OF BIRDS.—The annual general meeting of the above Society, of which Her Grace the Duchess of PORTLAND is the President, will take place on Tuesday, February 10, 1903, at the Westminster Palace Hotel, Victoria Street, London, S.W. His Grace the Duke of BEDFORD will take the chair at 3 P.M.

HONG-KONG.—We learn that Mr. FORD, the Director of the Botanic Garden, has resigned his appointment after a lengthened term of service, and that Mr. S. T. DUNN, from the herbarium staff of the Royal Gardens, Kew, has been appointed in his stead.

ROYAL BOTANIC SOCIETY.—A laboratory has, we read with gratification, been opened in the gardens of the Royal Botanic Society at Regent's Park, in which classes for instruction in botany and horticultural chemistry are held three days a week. Mr. E. J. SCHWARTZ, Demonstrator in Botany at King's College, has been appointed director, and he has now completed arrangements for the reception of pupils. The laboratory has been erected and equipped under the ægis of the Technical Education Board, and there is ground for hope that it may form the nucleus of a more ambitious botanic institute in connection with the Royal Botanic Society.

GARDENS AT RAILWAY STATIONS.—The directors of the Great Eastern Railway Company have decided to improve the appearance of some of their country railway stations by laying out pieces of waste ground at the back of platforms as gardens and shrubberies. The directors have appointed a gardener, whose duty it is to suggest where these improvements can be made, and superintend the carrying out of the work.

VILLA THURET.—We have received a copy of the *Catalogue des Graines*, or catalogue of seeds, offered for exchange by the Director of the Villa Thuret, at Antibes, so long under the management of our venerated friend, CHARLES NAUDIN, and now under the direction of M. GEORGES POIRAULT, to whom applications for exchanges should be made before March 1.

MR. W. A. COOK.—We regret to learn that Mr. COOK, who for several years was head gardener at Compton Bassett, and so recently as last year appointed to a similar post at Erlestoke Park, Wilts, has, through the death of SIMON WATSON-TAYLOR, Esq., to relinquish his charge. We hope so good a gardener will not long remain disengaged.

ASCOTT, LEIGHTON BUZZARD.—On the occasion of the festivities following the coming of age of Mr. LIONEL DE ROTHSCHILD, which continued for more than a fortnight, balls playing an important part, the floral display was very extensive, and uncommonly rich and effective. This display was concentrated in a temporary pavilion 200 feet in length and 70 feet wide, which had been erected on the cricket-ground, and this the various gardeners at Gunnersbury Park, Gunnersbury House, and Ascott, had done their utmost to make worthy of the auspicious event. Among the material that contributed to the show, we may mention Forget-me-not and Yellow Tulips (blue and yellow), the Rosebery colours; pink and pale yellow Roses, with foliage of Galax aphylla, &c. Palms and tall Dracænas were used as a background to beds and lines of smaller Dracænas, Codiæums, Lilacs, Euphorbias, Begonias, and standard zonal Pelargoniums, arranged in the aforesaid pavilion. It was the boast of the able gardeners to the various members of the family, Messrs. J. HUDSON, G. REYNOLDS, and J. JENNINGS, who carried out the decorations, that nothing was employed but what had been grown and supplied by them.

VISIT OF THE KING AND QUEEN TO WYCOMBE.—On the occasion of Their Majesties visit to Earl and Countess CARRINGTON at Daws Hill Lodge, High Wycombe, on January 29, there were several memorial trees planted. The KING and QUEEN planted two Cedars of Lebanon in the flower garden, on the south front of the residence, and Countess CARRINGTON planted a Plane-tree. Their Majesties were greatly interested in the alterations and improvements that have been carried out under the superintendence of Mr. G. T. MILES, sen., Lord CARRINGTON's steward. Subsequently the QUEEN, through Lady CARRINGTON, expressed her desire to present to Mr. MILES the spade which had been used in the planting of the trees. The spade, which was supplied by Mr. R. C. R. POTTER of Wycombe, had a specially polished blade and handle, and it is Earl CARRINGTON's intention to have a suitable inscription engraved on the implement.

"DIE VEREDELUNGEN VON OBSTBÄUMEN UND FRUCHTGEHÖLZEN," Von Ph. HELD, Stuttgart (WILLIAMS & NORGATE) ("The Improvement of Fruit-trees and Bushes").—We mention this work for the sake of calling attention to the very numerous coloured illustrations, showing the methods of grafting, budding, pruning, as well as of the destructive insects most frequently met with on fruit trees. The figures are excellent, and should find a place in technical schools to facilitate practical work.

"OUR POULTRY."—The seventh part of Mr. HARRISON WEIR's exhaustive work on poultry (HUTCHINSON & Co.) has been published. It deals with the game-cock, is finely illustrated, and contains much curious matter, interesting not only to poultry-fanciers, but to naturalists generally, and to those interested in "sport"!

"THE GARDENING WORLD" in its new guise has greatly improved its appearance. As to its contents they were always good, and they are so now.

"INDIAN PLANTING AND GARDENING."—This is an old friend with a transmuted title—"Planting" and especially the cultivation of Tea—now take the first place, and gardening is relegated to the second half of the paper, but as its interests seem to be as well cared for as before, Indian gardeners have no cause for complaint.

JARDIN DES PLANTES.—Prof. COSTANTIN, the newly appointed Director of the garden attached to the "museum" of Paris, has issued a lengthy catalogue of seeds collected in the garden in 1902 and available for exchange. Applications should be made to the Director (Service de la Culture), Rue Cuvier 57, Paris.

"THE GARDENING YEAR BOOK."—Messrs. COLLINGRIDGE, of 148, Aldersgate St., have published the forty-fifth yearly issue of this little book, also known as the *Garden Oracle*. It is full of useful practical hints, a list of new plants of the past year, an enumeration of the principal public parks and gardens throughout the country, from which by the way we miss mention of the Radnor Park at Folkestone, and much information of a miscellaneous character. When we say it is prepared by the editor of the *Gardeners' Magazine*, we have said all that need be said in the way of commendation.

TREES AND SHRUBS.—Under this title, Prof. SARGENT is bringing out what may be termed an appendix to his famous "Silva." It consists of a series of illustrations of new or little known ligneous plants growing in the Arnold Arboreum, of which he is the director. The drawings are by Mr. FAXON, and in size are somewhat smaller than those in the Silva. A full description of each tree is given by the author. Numerous new or little known species of Cratægus are illustrated in the first number. The publication can be had of HOUGHTON, MIFFLIN & Co., Boston, through WILLIAMS & NORGATE, Henrietta Street, Covent Garden.

SIR WILLIAM HOOKER.—Those interested in the history of Kew, and the career of its first director, will read with avidity the sketch of the life and labours of Sir WILLIAM JACKSON HOOKER, contributed to the January number of the *Annals of Botany*, by his son and immediate successor, Sir JOSEPH HOOKER. Only a comparatively few of the present generation can have personal knowledge of the details concerning the history of the Royal Gardens when in 1841 they were taken over by Sir WILLIAM HOOKER. Those few will be delighted to have their remembrances freshened by this charming piece of biography. Others familiar with the existing establishment will read with great interest the account of the steady evolution of the institution under the guidance of successive directors. We are all proud of Kew, and this memoir will increase that feeling, and enhance our admiration at the unceasing labours and the consummate ability of those by whom it has been brought to its present condition. The sketch of Sir WILLIAM's life in Glasgow as Professor and Director of the Botanic Garden is also particularly interesting, and shows how wise was the choice of such a man to organise and direct the national botanical establishment. In Glasgow were laid the foundations of that correspondence with merchants and botanists abroad and in the colonies, which afterwards bore fruit in the Kew museums, and in that attention to economic botany which has resulted in such great benefits to our colonies. At Glasgow, too, the herbarium and library were gradually accumulated till they have become unrivalled. There also was found the artist, WALTER FITCH, whose aid and talent rendered possible the production of the prodigious number of illustrated works which emanated either from Glasgow or from Kew. We have not space to dwell at greater length on the career of Sir WILLIAM HOOKER; we can only end, as we began, by saying that this sympathetic biographical note will be read with avidity.

MOSQUITO BANE.—In a recent number of *Nature*, Mr. SHIPLEY called attention to the influence of the leaves of Ocimum viride in banishing mosquitos. Following up this subject, Mr. PERCY GROOM narrates how his house at Whampoa was comparatively free from the invasion of these insects, a circumstance which he attributes to the presence of a line of Papaw-trees which intervened between his house and the river. Other houses in the same island were more or less infested with these insects. Once, after a typhoon had blown down two of the trees, and left a gap, the number of mosquitos in the house increased. Mr. GROOM further states that he never saw an insect on these trees, though he frequently examined them, and observed flies and other insects upon the Bamboos and Bananas near by. As the Papaw has usually unisexual flowers, and is in fact generally dicecious, it becomes interesting to know by what means fertilisation is effected.

GOOSEBERRY DISEASE.—In the *Journal of Botany* for January, is published in full a paper by Miss A. LORRAIN SMITH, which was read before the British Association, at Belfast. The bushes for an area of about two acres were found to be dying off. On examination the mischief appeared to be confined to the base of the stem immediately above and below the ground level, where the bark was split and broken. Numbers of hard black lumps, or "sclerotia" were found in the cracks associated with threads of Botrytis, the "conidial" form of Sclerotinia. These fungus threads were traced through the stem and into the roots. Portions of the bark and stem were placed in a damp chamber with the result that a plentiful growth of Botrytis took place, as well as of sclerotia. A Peziza also grew from one of the sclerotia which was duly examined and measured. Some of the soil was obtained in which were planted Potatos, Beans, and Lettuces, all plants that had suffered from sclerotium disease. On the Lettuce, Botrytis cinerea made its appearance, but the other two plants remained healthy. This Botrytis is very common on decaying tissues, and begin by feeding on the decaying tissue, after which they become truly parasitic and feed on the living healthy cells. The hyphæ or fungus threads secrete oxalic acid, a poison, which kills the cells, and the fungus then lives on the dead tissue. The conidial spores of the Gooseberry fungus were cultivated in a mixture of gelatin and plum decoction, and produced a copious growth of spawn "mycelium" with "organs of attachment." Incidentally Miss SMITH describes the growth of the spores of the Pæony fungus which also bore conidial threads and sclerotia. We should fear there is no hope for the Gooseberry grower, except the destruction of the diseased plants, and the culture of the bushes in some other spot.

THE EVOLUTION OF SPECIES.—The article which Dr. A. R. WALLACE contributes to *Black and White* of January 17 on his relations with DARWIN in connection with the theory of natural selection, is, says *Nature*, from which we quote what follows, "a historical document of great scientific interest. Dr. WALLACE was introduced to DARWIN in the insect-room of the British Museum in 1854. While living in Borneo in 1854, Dr. WALLACE wrote a paper 'On the Law which has Regulated the Introduction of New Species,' which was published in the *Annals of Natural History* in the following year. Hearing that DARWIN was preparing some work on varieties and species, Dr. WALLACE sent him a copy of his paper, and received a long letter in reply, but no hint was given by DARWIN of his having arrived at the theory of natural selection. DARWIN had, however, actually written out a sketch of his theory in 1842, and in 1844 this sketch was enlarged to 230 folio pages, giving a complete presentation of the arguments afterwards set forth in the *Origin of Species*. Dr. WALLACE arrived at the idea of the 'survival of the fittest' as the operating cause in evolution in 1858, and immediately sent the outlines of this theory to DARWIN, who brought the communication before Sir C. LYELL and Sir JOSEPH HOOKER, and urged that it should be printed at once. Upon their advice, however, DARWIN consented to let an extract from his sketch of 1844 be presented to the Linnean Society with Dr. WALLACE's paper on July 1, 1858." In conclusion, Dr. WALLACE says, "The one great result which I claim for my paper of 1858 is, that it compelled DARWIN to write and publish his *Origin of Species* without further delay."

"THE FLORA OF THE EAST RIDING OF YORKSHIRE," including a physiographical sketch, by JAS. FRASER ROBINSON; to which is added a List of the Mosses of the Riding, by J. J. MARSHALL. (London: A. BROWN & SONS, Ltd., 5, Farringdon Avenue, E.C., and at Hull and York.)—Mr. ROBINSON tells us that no former flora of the East Riding has been published, so that his book supplies a distinct want. It is the result of seventeen years' study and observation on the part of the author, and of other members of the Hull Scientific and Field Naturalists' Club, and many authorities have been consulted with a view to rendering the information as correct as possible. "The district treated of includes chalk-wolds, sandy plains, glacial mounds of clay and gravel, alluvial and marshy flats, an estuary, and a sea-board. Around the docks at Hull are certain waste grounds, upon which large numbers of interesting aliens flourish. Of the ninety-eight Orders of British plants, no fewer than ninety-one are represented in the Riding. Without the mosses, the flora includes 1,035 species, and full particulars of each are given, viz., scientific and common names, dates of flowering, whether native, alien, &c.; general remarks on distribution, habits, localities, authorities for records, &c." From this quotation from the programme, readers will know what to expect from this book. After an introductory chapter and one on the physiography of the East Riding, comes the "Flora," arranged according to the London Catalogue; and, lastly, the list of mosses and Hepatics, and their habitats. An index is appended, and a map showing the flora and also the botanical divisions into which, for the sake of reference, the Riding has been separated. Much careful labour has gone into the book, and we commend it to all readers in general, and intelligent Yorkshire folk in particular.

UNIVERSITY EDUCATION IN BRITAIN.—Our contemporary, *Nature*, for January 1, contains an article on the above subject, from which we take the following paragraphs. The topic is one in which everybody should feel an interest, and which cannot be too widely and wisely discussed. President Sir OLIVER LODGE has prepared a pamphlet entitled *Survey of the Sciences*, which forms an appendix to a paper on University Development, and it is from this that the statements quoted are obtained:—"Our eleven universities are competing with 134 State and privately endowed in the United States, and twenty-two State-endowed in Germany. English private endowment is much less than 10 per cent. of the American endowment, and the German State gives to one university alone more than the British Government allows to all the universities and university colleges in England, Ireland, Scotland, and Wales put together. These are the conditions which regulate the production of brain-power in the United States, Germany, and Britain respectively, so far as universities are concerned—conditions which Sir OLIVER LODGE proposes to face as manfully as he may." In his recent paper on the Survey of the Sciences, he thus reports upon botany in connection with the University of Birmingham. He says that "botany is studied with us partly for its own sake as a department of natural history, allied to horticulture and gardening generally, and also from the point of view of vegetable physiology. This science is the foundation of much of agriculture, of forestry, of materia medica, of timber and plant diseases, the fermentation industries, and of many human diseases. It is allied on its morphological side with palæontology; on its physiological side it is largely dependent on physics and chemistry. At the present time it is not taught as a separate subject in the medical curriculum at Birmingham, but admittedly only because the course is so crowded that something had to give way." The same article from which these paragraphs are taken also mentions the scale upon which certain American colleges are endowed, and quotes the following from the Trust Deed with which Mr. CARNEGIE has endowed a research Institution at Washington with ten million dollars; it is considered to be an "altogether admirable statement of 'aims':—

"To promote original research, paying great attention thereto, as one of the most important of all departments.

"To discover the exceptional man in every department of study, whenever and wherever found, inside and outside of schools, and to enable him to make the work for which he seems specially designed his life-work.

"To ensure the prompt publication and distribution of the results of scientific investigation, a field considered highly important. The chief purpose of the founder being to secure, if possible, for the United States of America leadership in the domain of discovery, and the utilisation of new forces for the benefit of man."

TOMATOS.—In Bulletin No. 81 (November, 1902) of the University of Illinois Agricultural Experiment Station, is an essay by Mr. ALVIN C. BEALE, upon forcing Tomatos, from which we quote the following summary :—

"By checking the plants it is possible to secure fruit in fifty days from benching. Pollen is not discharged during cloudy weather, and advantage must be taken of short periods of sunshine to pollinate by hand. Since the product is most valuable it will pay the grower to pollinate by hand regularly between December 1 and March 1. The advantages are, a larger number of fruits set, with larger and uniform fruits. A careful selection of varieties for the mid-winter crop is requisite for the greatest success. Those varieties developed under forcing-house conditions, like Best-of-All and Lorillard, give the best results. Eclipse gave the largest yields both for the winter and spring crops of 1902. It is not quite so early as Best-of-All, but it produced the smoothest and most solid fruits. The yield of Yellow Prince was decidedly inferior to that of Combination grown under similar conditions. Plants trained to single stems gave a much greater yield per square foot of bench than those trained to three stems, the yield of the former being one and one-fifth pounds against four-fifths of a pound for the latter. The average yield for the season, 1901-02, including both the winter and spring crop, was from 2 to nearly 2½ pounds per square foot of bench, or from 7 to almost 9 pounds per stem."

FRUIT FROM THE CAPE.—The authorities of the Union Castle R.M. Steamship Co. inform us of the arrival of the *Walmer Castle* with sixteen boxes of Apricots, fifteen of Peaches, and four of Pine-apples; the *Scot*, with 389 boxes of Plums, fifteen of Peaches, and sixteen of Apricots; the *Briton*, with 939 boxes of Plums, and eight of Peaches.

PUBLICATIONS RECEIVED.—*New Zealand Department of Agriculture: Tenth Annual Report*, 1902. Deals largely with reports on live stock and dairying, and with notes on New Zealand Hemp, by C. J. Fulton, and from the various experimental stations. Much work has been done in the horticultural and biological sections with various crops, of many of which illustrative plates are given; there are useful notes on weeds (Senecio Jacobeus and Picres echioides), and upon experiments with Vines and other fruits, together with reports on exports.

A BRANCHING PSEUDO-BULB.

FORKING or branching in the pseudo-bulbs of Orchids is by no means of common occurrence, on which account we give an illustration (fig. 39) of a plant exhibited before the Royal Horticultural Society on January 27 by J. Bradshaw, Esq., Southgate (gr., Mr. Whitelegge), which showed this peculiarity. The growth started, we are informed, in the ordinary manner, but speedily divided into two branches, which became of equal size. Why this should have occurred we do not know—possibly from some injury at a very early stage of growth.

ENQUIRY.

TROPICAL HERBARIUM SPECIMENS.—M. Buysman, Middelburg, Holland, is desirous of obtaining herbarium specimens of tropical plants.

APPLE-GROWING FOR PROFIT.*

(*Concluded from p. 69.*)

THE MARKETING OF FRUIT.—On all sides complaints are being made about the indifferent way in which home-grown Apples are sent to the market. In 1895 Mr. George Monro, of Covent Garden, stated that Apples and Pears were worse packed than they were twenty years ago. But above everything, it is the want of grading which is felt. American Apples are well packed, and carefully graded, hence buyers know exactly what they are getting, and buy readily. Much of the home-grown fruit is sent to market loosely packed, in packages of varying capacity, and ungraded, simply as taken from the trees; large and small Apples mixed, or not infrequently packed so that large Apples are on the top and small Apples underneath. This absence of system has been ruinous to the trade in home-grown Apples. English and Irish growers of repute who pack securely in uniform packages, boxes or barrels of known capacity, as the case may be, and who carefully grade their fruit into firsts, seconds, and even thirds, have no difficulty in disposing of it at really good prices. A study must be made of the particular market to which consignments are sent—a study of the most suitable package to use, and the capacity of that package; a study of the varieties most in demand, for there is a difference in the Dublin, Glasgow, Liverpool and London markets; and if these points are attended to fruit will sell well.

Growers for market will find it much to their advantage to use with first quality fruit a cheap, non-returnable package, which will be sold with the fruit, as the barrels in which American Apples are imported are sold. Grocers and retail dealers are more inclined to purchase fruit in such packages, as they are saved all further trouble, and the fruit can be sold direct out of the boxes or cases, without having to be unpacked.

* Paper read at the Fruit Conference, Cork, on October 17, 1902, by Mr. F. W. Moore, A.L.S.

FIG. 39.—LYCASTE SKINNERI WITH BRANCHED PSEUDO-BULBS.

SYSTEM OF STORING FRUIT.

The method of storing Apples also requires consideration. An elaborate, expensively-built fruit store is unnecessary. Apples keep best in a cool store, which is not too dry, but which must be ventilated, and from which the light can be excluded. An old stable or store, with brick or concrete floor, is an excellent place, and if lined with ½-inch planks, such frost as we get in Ireland will do very little harm. Good broad shelves made of strips of wood, with small spaces between them, the shelves 12 inches apart, can be put up very cheaply. The smaller and firmer fruit can be placed several layers deep on the floor. The large Apples should be placed in single layers on the shelves. Do not use straw or hay in storing. In case of frost, keep doors and windows closed, and do not open the store for some days after a thaw. A little frost will not injure Apples if they are allowed to thaw slowly, and are kept from sudden changes. If kept in a bright or dry room Apples shrivel quickly, and get unattractive. They must not be put too near the roof, nor must they be allowed to touch the outer walls. A store with a wooden roof inside slates, or with a loft or packing-room over it, is best, and provided ventilation can be secured Apples can be stored underground.

When orchards are in full bearing they require additional attention. The trees must be fed both with stable manure and artificial manure, to secure the best results. An excellent plan is to dress one year with stable manure, the succeeding year with chemical manure, and the third year to give a dressing of fresh lime over the surface, reverting to stable manure the fourth year. Both ground and trees must be kept clean by constantly keeping weeds down; and each winter very lightly forking over the surface under the trees, not going deep enough to touch the roots. The trees can be kept clean and healthy by spraying. Spraying should be done in spring, before the buds open. Bordeaux Mixture makes a good spray, and an excellent mixture can be prepared by

dissolving 1 lb. crude soda, 1 lb. caustic potash, ¾ lb. agricultural treacle, in 8 to 10 gallons of water; this will suffice for twenty fair-sized trees, if carefully used. In conclusion, I may remark that larger growers almost unanimously state, and market statistics prove, that a higher price is now given for good Apples than twenty-five years ago. *F. W. Moore.*

HOME CORRESPONDENCE.

BEGONIA GLOIRE DE LORRAINE UNDER COOL CONDITIONS.—Being very much interested in the cultivation of Begonia Gloire de Lorraine and its sports, I should like to tell you of a houseful of them which I saw in the Rev. R. G. Buxton's garden, Sutton Hall, Sutton-on-the-Hill, Derby (gr., A. Shambrook), grown entirely under cool treatment. I have never observed any to equal them for size and sturdiness of habit, and for such a beautiful tint of foliage, which is not to be obtained with a warm, moist treatment, although I had myself always grown them in a warm and moist house, and had large plants. For the future I shall certainly afford this plant cool treatment; and from what I saw at Sutton Hall, I should be more inclined to say that cool treatment indicates the way to complete success. I think this corroborates the statement of "H. W. W.," given in the last volume of the *Gardeners' Chronicle*,, p. 451, and also Mr. Divers' statement, that with care and a carefully selected position, they might be grown outside in the summer. *C. L. Branson, gr., Coleshill Park, Birmingham.*

FRENCH PRUNES.—It was recently stated on editorial authority in the French *Journal le Jardin*, that besides importations from California, more than two hundred thousand tons of Prunes (two hundred and forty million kilos.) are annually imported into France from the principality of Servia alone, and sold as "Prunes d'Agen." This would be about twenty thousand large railway truck loads, and seems a very large order, but I looked in vain in subsequent numbers for any correction of the statement. *C. W. D., Malpas.*

IPOMŒA RUBRO CŒRULEA.—Sometimes called Morning Glory, which name is a very appropriate one, for it is in the morning when the beautiful blue of this charming creeper, with its funnel or bell-shaped flowers, are so much appreciated. Yet how seldom one sees or even hears of it being cultivated! This can in no way be attributed to the difficulty experienced in its cultivation. Here it is the general practice to have a fairly constant supply of flowers for at least three months in the year, and at a season when flowers of this colour are but seldom to be seen, and variety is one of the greatest charms of a garden. It is our usual practice to commence gathering the flowers of this plant about November 1. In fact, it was a special request to have the breakfast-table decorated with this flower on November 5, and in this there is little or no difficulty, breakfast and luncheon-tables, being with but few exceptions, decorated during November, December, and January, at which season the Ipomœa has many admirers. To accomplish this, the seed should be sown early in June, in small 60-sized pots, in an intermediate-house, never allowing the plants to become potbound before repotting them, finishing with 8 or 10-inch pots, when they should be placed in their flowering quarter and allowed to run; and with little attention, perhaps, in directing them over the space which it is intended they should occupy, which should be near the glass in a house with a minimum warmth of 60°. Red-spider is the only enemy, but with a fairly moist atmosphere, and avoiding dryness at the root, little difficulty is experienced. Where accommodation can be provided, planting-out is a sure and satisfactory practice to be adopted. Rich loam, with the addition of leaf-mould and some manure from a spent Mushroom-bed, or the like, with due attention to watering, is all that will be found necessary. *William Fyfe, Lockinge Gardens, Wantage.*

PHEASANTS IN THE GARDEN. (Reply to Enquiry).—Living in a district where pheasants are reared in large numbers, I have found them to be real pests in the garden. They are more troublesome in the autumn and winter months, and especially during prolonged frosts, when green food is difficult to obtain outside of a garden. These birds are very partial to Brussels Sprouts, young Cabbages, Parsley, Carnation-grass, and will also tear up bulbs and the corms of Anemones. As pheasants do not willingly fly down into confined spaces, but run about the garden in search of suitable food, I have had wire-netting 3 feet high, and supported with stakes, placed round the vegetable quarters and beds where pheasants are likely to be troublesome; and as the birds are unable to run in and out as they like, this has been the means of my preventing losses in vegetables and flowers in gardens where formerly nothing could be saved. *J. H. Cumming, Grantully, N.B.*

GRAND YORKSHIRE GALA, 1903.—I expect by this time that all who are exhibitors or in other ways interested in the above Institution, will have received the prize-schedule for this year. It is to be hoped that the committee may have a more successful year than was the past one. What with preparations for the then hoped-for coronation of the King, and the wretched weather, they had a severe loss. As will be noticed, the time fixed for this year's gala is somewhat later than has been the case for some few years past. I think the committee are wise in choosing the dates, June 24, 25, 26; and it must be an advantage to the majority of exhibitors, whether in the plant, fruit, or vegetable classes. Several old familiar classes are struck out this time. I allude to the ones for specimen Azaleas and Cape Heaths, and the one for six specimen Fuchsias, and fifteen show Pelargoniums. The competition in these classes has been but slight in recent years, since some of the older exhibitors gave up exhibiting. No doubt, the great glare of colour annually seen in the Pelargonium-tent was a great attraction to many of the visitors; still, with, we may hope, the better educated taste of the general public, no one can blame the committee for the step taken. Smaller classes and prizes are retained, and there is no diminution in the classes for zonals, single and double-flowered, and Ivy-leaved varieties. In the place of the class for six specimen Fuchsias, a new one is offered for a group of Fuchsias arranged for effect with Ferns, &c. This must be a decided improvement in general effect, assuming that fair competition is shown. While skill was required to grow and flower at the right time the big specimen Fuchsias so often seen at York, it must be admitted there was a great sameness in them from year to year; latterly they have scarcely been worth the money offered in prizes. Amongst the newer classes may be mentioned an additional prize in the collection of pot-Roses, prizes for twenty-four and twelve bunches of garden Roses, for eighteen bunches of herbaceous Pæonies in variety, and for twelve bunches of Sweet Peas, distinct, arranged in vasea or glasses. In the bouquet classes new prizes are offered for a shower-bouquet of Roses, and sprays for ladies and gentlemen, six of each. The prizes offered for fruit and vegetables are practically the same as in previous years. It would be difficult at that season of the year to improve upon this portion of the schedule. Mr. Fred Arey, Davygate, has succeeded Mr. C. W. Simmons as secretary to the Gala committee. *H. J. C.*

NEW CHRYSANTHEMUMS.—Growers who may now be thinking of purchasing a few of the large number of novelties offered by various trade growers must find the task of selection no easy one, especially so when their only guide is the trade lists; but those who have been fortunate enough to see any of the varieties at the shows will be less bewildered in making a choice. It is, however, for the larger number of growers that the following are submitted for consideration, based upon notes made at several exhibitions; and in describing this selection, the usual tedious redundancy of catalogues will be sacrificed to brevity. Experts are agreed that the best of the year is the variety known as Miss Mildred Ware, said to be a seedling from Madame Carnot and Lady Hanham; the build of the blossoms resembles the first-named, whilst in colour it is similar to the latter. These two merits will be ample to illustrate this variety for the consideration of growers of large blooms. The limited number that we possess of good crimson shades of full size will this year be increased by the addition of the variety George Penford, a warm crimson with a bright yellow reverse, of full size and pleasing formation; the florets droop and curl in a graceful manner. Lord Hopetoun, an Australian variety, is also of a crimson colour, and as shown in the autumn, promises to be seen in good form next season. The inclusion of yet another crimson is justified by the generally acknowledged absence of colour upon exhibition tables. Thus, Wilfred H. Godfrey, can be commended as possessing the essential merits of size and colour, being a rich crimson with a golden reverse. All growers well know the variety Lord Ludlow, so that to say succinctly, Donald McLeod is an improvement of that splendid Chrysanthemum, is sufficient to convey a clear impression of what this last-named is like. In Edith Smith we have a blossom of a creamy-white shade. The refined appearance of well finished Madame Carnot blossoms is characteristic of this variety as seen on one or two occasions at the shows. Two varieties of a yellow shade were consistently good; one named F. S. Vallis, raised on the Continent, is put forward as an improved G. J. Warren. The comparison is apt, and provided it is of more certainty in development than the Carnot family, should become a general favourite. The other is known as the Hon. Mrs. A. Acland, exceedingly meritorious at the October shows; its florets are a good length, and build up a full size bloom of deep rich yellow. Where early blooms are required this should be noted. One of the most rare and pleasing shades of colour is a true pink, and admirable blooms are remembered of the Countess of Harrowby, the prettiest pink of recent years; it is large enough for any exhibition, and of prepossessing appearance. All the foregoing are Japanese. Of new incurveds of conspicuous merit, a variety named The King was noted as of satisfactory build and distinct colour, and has already been shown successfully. Pantia Ralli bids fair to gain the full number of points at shows; its colour is bronzy-buff, with petals of good substance. The frequent appearance of the variety Mrs. Henry J. Jones warrants the popularity of its yellow flushed red sport, Mildred Lyne, and possessing the well known traits of the former excepting colour needs no further remark. Two other important sports may be mentioned: Cheltoni, a yellow sport from Miss Nellie Pockett; and H. J. Gillingham, a yellow sport from Western King. *H.*

ELASTIC THREADS IN EUCALYPTUS. — I was so much interested with the nature and behaviour of a leaf of Eucalyptus citriodora, which I picked yesterday, that I send you the specimen I dealt with, which I have mounted on the paper. When I broke the leaf, which was about 3 inches long, across the midrib, I found that there was an attachment, as of a thread or filament, at each of the outside edges of the leaf. On drawing apart the two broken pieces of the leaf, these two threads still held on, and I slowly drew them out, when, besides stretching out like a thread of indiarubber, they gradually separated or unravelled from the edges of the leaf, both at the stalk end and at the tip of the leaf. The threads were so elastic that I drew them out to the length of 6¾ and 7¼ inches respectively before they broke, and they then curled up like a piece of indiarubber cord when the strain is taken off, and they now, after twenty-four hours, retain their elasticity. "*Rus in Urbe.*" [The Eucalypts, like most of the Myrtaceæ, have an "intra marginal" vein running round the leaf, just within the margin. It is this vein which has been broken across, and the fibres stretched out. In Musas, Nepenthes, and other plants, a similar occurrence is constant, but we never saw it in Eucalypts before. ED.]

CAMPANULA LATIFOLIA.—On p. 100 of the September, 1902, *Quarterly Journal of the Royal Horticultural Society*, I observe, and ask to be allowed to correct, what I think is an error concerning the native distribution of C. latifolia, Lin. It is there stated to be "a British hedge plant, very plentiful in Sussex." I have never seen C. latifolia growing really wild in the South of

England. The large Campanula common in the south in hedges and thickets is C. Trachelium, Lin. This is common as far north as Cheshire and Shropshire, but in Derbyshire begins to be replaced by C. latifolia, which extends northwards into Scotland, frequenting woods rather than hedges. *C. Wolley Dod, Edge Hall, Malpas.*

CRICKETS.—In reference to your correspondent "A. G." in the *Gardeners' Chronicle* of January 24 concerning crickets in hot-houses, I would advise him to use "Steiner's Vermin Paste." Some months ago we were much troubled here with crickets and cockroaches. Since using Steiner's paste we have been quite free. It should be placed near their haunts, in pieces rolled up to the size of a Pea. The insects may be found dead in scores underneath stages, &c. *George Hall, Melchet Court Gardens, Romsey.*

THE ROYAL GARDENERS' ORPHAN FUND.—The subscribers to this very popular Fund will not this year enjoy the customary excitement of being invited to vote for candidates for election on the Fund. That no fewer than twenty-four orphan children should be nominated, and that the committee should find themselves in a position to place all on the Fund at once, is not only to establish a record in the Fund's operations, but also to do an act which should make every subscriber's heart to rejoice. Probably next year it may be needful to revert to the customary election. It is now, in any case, most satisfactory to learn that the Fund has so far prospered as to enable this great act of generosity to be thus accomplished. True, under the existing and perhaps rather too iron-bound regulation that compels all children to go off the Fund when the age of fourteen is reached, some of the new candidates can enjoy the benefits of the Fund but a very brief time. That does materially reduce the demand that otherwise would by this considerable election be made on the Fund; but cases now and then occur which from their undoubtedly painful nature invite more extended assistance. That the committee should have power to grant even up to the age of sixteen at least, especially where orphans are afflicted with some distressing ailment, seems desirable; whilst few subscribers would complain could the present age limit be extended to fifteen years in all cases. Necessarily, when cases call for special treatment, the fullest confidence should be reposed in the committee, all the members of which body desire to manage the Fund at once in the most economical yet most beneficent way. It is difficult to avoid feeling deeply, in reading over the descriptions of the various candidates, to find how many good fathers have died so comparatively young. A knowledge of this fact should help to arouse in the minds of the young gardener-fathers of to-day a more appreciative sense of the great value the Fund is to the gardening community. *A. D.*

ROYAL HORTICULTURAL SOCIETY. — I learn from the annual report just received that the Society has, in addition (I presume) to the £22,000 said to have been subscribed for the new Exhibition Hall, a balance of over £16,000, invested and on deposit; say, £38,000 in all. As the estimated cost of the new building is £40,000, we seem to be within measurable distance of having it if the £16,000 is to be so employed. Perhaps at the annual meeting on the 10th inst., some Fellow will ask if this is so, and if not, why not? *X.*

—— It was not my intention to occupy your space again under the above heading, but the anonymous letter by an old Kewite seems to call for some notice. Surely this correspondent is not voicing the opinions of the promoters of this National Institution, when he seeks to limit freedom and thought by suggesting "earning the right to criticise by the liberality of their contributions." The idea of earning the right to criticise a scheme in its inception by the "liberality of their contributions" is quite new, and only leads to the conclusion that those who have contributed most liberally have the most right to criticise, a position quite untenable considering that the greater part of the proposed expenditure has yet to be provided. The first step should have been to awaken the interest of all the Fellows, by taking them into the confidence of the promoters. An exhibition of competitive designs should have been held, and the opinions of the Fellows upon their merits invited. In this way the best result would have been attained. To secure "liberality of contributions," something must be presented which commends itself to the judgment of those most interested. So far the scheme does not appear to have aroused interest, not to mention liberality, and the design which accompanies it represents rather an ungainly site for the present purposes, and no provision appears to have been contemplated for future additions to meet the growing requirements of horticulture. I have taken a deep interest in this question, and given much thought to it, and would have willingly contributed £25 towards a prize for the best design, in which the fine arts and perhaps music had a place, in addition to adequate accommodation for floral and fruit exhibitions, and space allotted for the equally important vegetable section. A light gallery running round the interior of the hall would have a good effect, and here the vegetables, &c., might be exhibited. The walls of the building, both gallery and ground floor, would then be hung with pictures, which would greatly enhance the appearance of the hall, and harmonise with the floral surroundings. An annual exhibition of pictures rejected at the Academy would be very attractive, and such an exhibition would be sure to command success, and assist in providing funds for the maintenance of the hall, and a certain revenue from the letting portions of the building for meetings of various kinds and also concerts. I think these various interests should not have been overlooked. *James L. Wood, F.R.H.S.* [Our correspondent has evidently not seen the notice-boards displayed on the Vincent Square site, or he would see that to some extent his wishes have been anticipated. Ed.]

NEW INVENTIONS.

THE PRIAULX PATENT TROUGH.

In figs. 40 and 41 are illustrated a new trough invented for the cultivation of Tomatos, Melons, Cucumbers, Beans, &c. It will be seen that the trough is made in pieces, which measure 18 ins. long by 9 ins. wide and 6 ins. deep, inside measurements. Two pieces, therefore, form a length of trough 18 ins. long by 18 ins. wide, and 6 ins. deep, as represented in fig. 41. It is obvious that the trough may be continued to any length desired, and terminated then by special corner pieces, which have one end closed. It may be made deeper by placing the pieces so that the 6-inch width is on the ground, and the 9-inch width as a wall. Such a trough is recommended for a double row of Tomatos or Beans; but another size suitable for a single row of Tomatos is made, the pieces of which measure 18 ins. long by 5 ins. wide, by 6 ins. deep. By these pieces a trough may be constructed measuring either 10 ins. wide by 6 ins. deep, or 12 ins. wide by 5 ins. deep.

In fig. 40 another description of trough is shown, in which the pieces are made in such a manner that the trough may be built over the hot-water pipe. This is recommended for crops requiring bottom-heat.

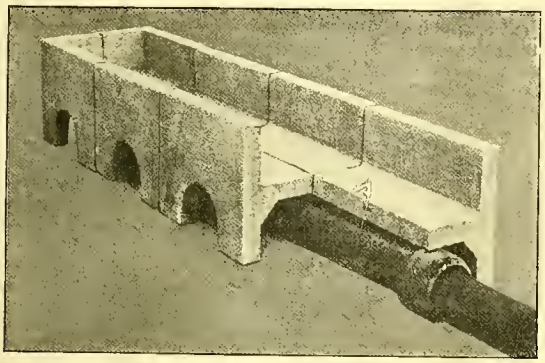

Fig. 40.—The Priaulx trough placed over a hot-water pipe.

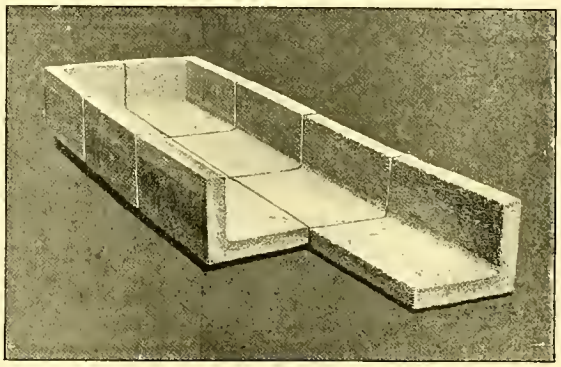

Fig. 41.—The Priaulx trough placed on the ground.

The pieces for both types are said to be made of materials into which Portland-cement and shingle enter largely. The trough is described as being absolutely porous, which means that the material not only absorbs water, but allows water to pass through it readily; it will not hold water. The inventor, Mr. W. N. Priaulx, a market grower in Guernsey, claims that owing to this porous quality, the trough is a more healthy receptacle for crops than pots, and the material will not rot or break, as boxes do.

The invention was introduced prominently to the market growers in Guernsey last year, and we are informed that already several miles of the trough are now in use in that island. Market growers in the south and elsewhere will soon discover whether the system is worthy of wide adoption, and is better than pots, boxes, wooden troughs, or raised borders. By its use it follows that the roots of the plants are kept quite under the control of the cultivator, and in cases of early forcing this is a great advantage, as compared with the case of plants growing in the soil of the house. It may be added that the trough can be placed directly upon the soil, and no drainage material of any description is needed. The patentees are the Priaulx Patent Trough Co., Ltd., St. Martin's, Guernsey.

TREES AND SHRUBS.

GARRYA ELLIPTICA.

It may not be generally known that Garrya elliptica grows well in limestone soils, or those of the basaltic formation, which are usually very warm, owing to their being well-drained naturally. In these the roots penetrate to a great depth, and nothing ever hurts the plants. For forming thick, impenetrable hedges, they are the equal of the Holly; and if space allows, such hedges may be allowed to extend to 4 feet in thickness and 8 to 10 feet in height. The plant bears cutting with the shears like Holly, and its flowering is not injured thereby.

ORCHID NOTES AND GLEANINGS.

DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES.

Part No. 50 of this useful work by M. Alfred Cogniaux, with excellent coloured illustrations from drawings made by M. A. Goossens, contains:—

Bulbophyllum Dearei.—A showy Philippine and Bornean species, closely allied to B. Lobbii, and of the Sarcopodium section. Flowers yellow with reddish markings, the labellum and lateral sepals bearing purple markings on a white ground.

Cattleya Luddemanniana var. Stanleyi.—A very beautiful white flower with yellow centre to the lip, the front of which is beautifully marbled with purplish-rose. It is a white form of the plant often called in gardens C. speciosissima. Imported and flowered by Messrs. Stanley, Ashton & Co., of Southgate, and named after a member of that firm. First-class Certificate, Royal Horticultural Society, September 21, 1902.

Cattleya × flavescens.—A pretty hybrid, raised by M. Maron of Brunoy, France, between C. Trianæi and C. luteola. Flowers whitish, tinged with yellow; disc of lip orange colour, front purplish-rose.

Cirrhopetalum Mastersianum. — A remarkable species introduced some years ago by Messrs. Linden from the Dutch Indies, and named in honour of Dr. Maxwell T. Masters, F.R.S., Editor of the *Gardeners' Chronicle*. Flowers conspicuous, produced in umbels, yellow, showily marked with dark red.

Cypripedium × Syrinx.—Raised by Reginald Young, Esq., of Liverpool (gr., Mr. Poyntz), between C. tonsum and C. × Youngianum. Upper sepal white, striped with green and purple; petals greenish, tinged with rose, and bearing scattered purple spots; lip tinged with pale tawny lilac; staminode yellowish, veined with green.

Dendrobium chrysotoxum suavissimum.—The well known yellow flowered form with purplish disc to the lip. Generally known in gardens as D. suavissimum, Rchb. f.

Lælia autumno × cinnabarina.—A singular cross between Lælia autumnalis and L. cinnabarina, but which in form and colour closely adheres to L. autumnalis. The hybrid was first raised by Messrs. Charlesworth & Co. of Heaton, Bradford, and the flowers figured came from the collection of Sir Trevor Lawrence, Bart.

Lælia × juvenilis var. Fournieri. — Raised originally by the late M. Alfred Bleu of Paris, between L. pumila and L. Perrini, and in this case the Lælia pumila præstans was the variety used with L. Perrini in its production. Sepals and petals purplish-rose; tube of the lip whitish, disc yellow, front purple of various shades.

Maxillaria rufescens.—A very old inhabitant of our gardens, and frequently imported from British Guiana and Trinidad. Flowers yellow with red spots on the lip. Of the class "botanical."

Odontoglossum crispum var. Leonie.—Flowers white, tinged with purple, and bearing rose-purple blotches. Named after Madame Leonie Closson, and flowered with M. Jules Closson (etablissement Jacob-Makoy), of Liège, Brussels.

Selenipedium Schlimii.—The chief ancestor of the very large race of hybrids of the S. × Sedeni class, and still far more beautiful than any of its descendants. Flowers white, with dark rose markings on the lip and petals. Staminode yellow, with two dark red marks in front.

Stanhopea graveolens.—Sepals and petals yellow, the petals spotted with red. Base of the lip orange, marked with red-brown; front portion white, with purple spots.

Trigonidium Egertonianum. — A very singular member of a small genus, with Maxillaria-like growth and habit, the solitary flowers borne on long stalks, calling to mind one of the smaller Irids. The three outer segments, or sepals, which form the showy part of the flowers, are brownish-yellow, tinged with purple, and changing to white towards the bases on the interior, the small purplish petals appearing in the centre.

The *Chronique Orchidéenne*, which accompanies the illustrations and descriptions, contains useful information; and an article on Disa grandiflora, by M. O. Ballif.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

January 27.—*Present:* Mr. A. Michael, F.R.S., in the Chair; Messrs. Hooper, Baker, Odell, Saunders, Worsdell, Worsley; Drs. Cooke and Rendle; Prof. A. H. Church, Revs. H. Ellacombe, W. Wilks, and G. Henslow (Hon. Sec.).

Peas attacked by Grubs.—Mr. Saunders gave the following report upon the specimens brought by Mr. Baker to the last meeting:—"I have examined a considerable number of the damaged Peas exhibited at the last meeting of the Scientific Committee, and I cannot say definitely by what insect they have been injured. The weevil (Bruchus pisi) certainly is not the culprit. Many of them appear to me to have been attacked by the "Pea-moth" (Grapholitha pisana), but I cannot find any trace of the insect; but that is not to be wondered at, as the moth lays her eggs on the pods when they are quite young, whence the little caterpillars make their way into the pods and feed on the Peas. When full grown they fall to the ground, and become chrysalides in the soil. A few of the Peas were attacked by mites, which were feeding on them in considerable numbers; and it is possible that they were the sole cause of the mischief. But I think not, or I should have found them in a larger proportion of the Peas. The mites, no doubt, only attacked the Peas after they had been placed in store, and any receptacle in which they were placed should be thoroughly cleansed; scalding is perhaps the most satisfactory method, if it be practicable. If any Peas attacked by mites were sown, no harm would be done. Some I examined would not have germinated, but the pest would not spread in the ground. If the Peas were injured by the caterpillars I have mentioned, it would be well, if not too late, to bury the top 3 inches of soil on which they grew as deeply as possible, so as to prevent the moths from leaving the chrysalides later on. The mites had appeared, no doubt, after harvesting."

Weevilled Peas.—Mr. A. Sutton sent specimens for comparison with those brought by Mr. Baker, in which the hole was quite irregular in shape, whereas it is perfectly circular if caused by the weevil:—"In further reply to your letter of the 13th inst., I now send you three samples of weevilled Peas, as a comparison between these and the maggoty seeds you sent me, which may be of interest to yourself, and possibly also to the Committee on Tuesday. Sample No. 1 are English grown early round Peas of harvest 1901, with a few of harvest 1900. Both these seasons were exceptionally hot and dry, and it is only in such seasons that we find English grown Peas at all weevilled. Broad Beans, on the other hand, are much more often attacked by these insects than Peas, but in such a wet, cold summer as the last, the damage is very slight indeed. In 1900 and 1901 a large quantity of Beans were badly weevilled. Sample No. 2 is a sample of "wrinkled" Peas "Champion of England" Canadian grown, of harvest 1900. These you will find also show the distinct clean circular opening made by the weevil in its escape from the seed. As I said in my last letter, I never recollect seeing a sample of English grown wrinkled Peas weevilled. No. 3 is a sample of French Sugar Peas also weevilled, and you will find the dead insects inside some of these seeds. These are of harvest 1901."

Sclerotium on Lilium flower-stalks.—Dr. Cooke reported on the specimen submitted at the last meeting by Mr. Holmes, having a black Sclerotium on the flower-stalks of Lilium candidum:—"In so far as a Sclerotium can be determined, this appears to be the same as one which is common on the stems of Heracleum and other Umbelliferæ, and which I think was called in olden time Sclerotium durum, when it was also recognised (see *Handbook*, p. 601) as the origin of the mould Botrytis, or Polyactis cinerea. Berkeley described a mould on Lily-stems as Ovularia elliptica, for which I afterwards suggested Botrytis elliptica. Marshall Ward, in hi paper on Lily disease, seems to have made acquaintance with the same mould, which he simply calls Botrytis. Massee recently, in *Journ. R. H. S.*, figures the mould under the name of Botrytis cinerea. Possibly there is only one mould, and that one the old Botrytis cinerea. But now, in latter days, this mould is regarded as the conidial stage of a Peziza, under the name of Sclerotinia Fuckeliana, and perhaps some others; at any rate, the little black Sclerotium, the mould, and the Peziza, are regarded as phases or conditions of one and the same fungus."

Dead Horse-Chestnut Trees.—Dr. Cooke also communicated the following report:—"Since the last meeting of Committee I have been consulted as to the death of some old Horse-Chestnut-trees in Greenwich Park; which has been caused, it is confidently affirmed, by a fungus which appears externally on the bark—and internally, in a plentiful mycelium, between the bark and wood. The species credited with this destruction is Stereum purpureum, although, so far as I am aware, neither Hartig nor any other of the German authorities on the parasites of forest-trees have mentioned this species as suspected of causing disease or death. It is generally recognised that the yellow Stereum hirsutum, which is so common on all dead wood as a saprophyte, is capable also of becoming parasite, and entering by wounds in the bark, causes destruction of living trees. Hence it is not so improbable that Stereum purpureum may also be capable of becoming a parasite. Another phase of this subject is interesting: Not long since it was brought to the notice of this Committee that a paper had been published which contended that this same fungus was the cause of 'silver-leaf' in stone fruit-trees."

Araucaria Bidwilli Cone.—Mr. F. Bull, Southport, sent a cone of this tree. The tree is about 40 feet in height. Dr. Masters observes that it fruited at Kew in 1873 (see *Gardeners' Chronicle*, 1873, p. 561, fig. 73). As the tree requires a great deal of space, it is not likely that there are many specimens outside botanic gardens. The seeds are eaten by the natives of Australia.

Campanula rotundifolia, diseased.—Mr. Worsdell exhibited specimens in which the flower-buds were attacked by Cecidomyia campanulæ, and presented a swollen appearance.

Pelargonium stipules, Use of.—Mr. Davidson, Fanners, Wickham Bishops, Essex, described an experience indicating a special use of these organs:—"Some time ago I was struck with the 'nursing' properties of the stipules of Pelargonia, which, when grown cold in winter, lose their leaves. If, for the sake of tidiness, the withered stipules are also removed, the buds are very slow to break in spring; but if the stipules are left on, the buds break much more readily, a fact which I found to be due to their holding moisture, and thus softening the skin. Darwin has observed that stipules sometimes serve to hold water."

Club-root in Cruciferæ.—In reply to a question as to remedies, Mr. Massee wrote as follows:—"The germs are hungered out, if the soil is kept free from cruciferous plants—cultivated and wild—for four years; their exit being hastened by the use of lime. As it would be at least inconvenient to cease growing 'greens' for such an extended period, the following plan might be adopted: As much quicklime as is compatible with the healthy growth of Turnips, Sprouts, &c., should be intimately mixed with the soil to the depth of 6 in. to 8 in. Just now is the time for this, as the germs will soon begin to be on the run. If gaslime is used, a layer about 1 inch thick, sprinked on the surface should remain for four weeks, and then be pointed into the upper 6 inches of soil. No planting should be attempted until after the gaslime has been on the soil for at least six weeks. The great bulk of plants are inoculated when quite seedlings, and those that escape for the first six weeks of their existence do not, as a rule, become diseased when planted in infected soil." Mr. Baker added some interesting remarks upon his experience. He said that a badly infected soil should have all cruciferous plants rigidly excluded for four years; and Shepherd's Purse, which is very liable to be attacked, should be entirely weeded out. The fungus could not cross a narrow path, but could easily be transmitted by garden instruments, or by the boots of the workmen. Superphosphates were rather favourable to the growth of the fungus, whereas basic slag was less so. Mr. Worsley had found gaslime to have been quite effective.

Ismene calathina, bulb germinating.—Mr. Worsley observed that in the germination of the seeds of this plant, before any leaf-growth takes place, it forms a

bulb and continually loses moisture, so that its weight diminishes from that of the seed to the amount of 75 per cent.; so that while ten seeds weigh 10 oz., it requires forty-four of the small bulblets to weigh that amount. Besides water, it is known that all seeds lose weight, as carbon is lost in respiration, which generates energy required for vital processes displayed in growth.

ROCHDALE CHRYSANTHEMUM.

JANUARY 21.—The annual meeting of members of the Rochdale and District Chrysanthemum Society was held at the Provident Hall on the above date. There was a large attendance, and the proceedings were prolonged and, at times, lively. In the absence of the chairman (Mr. James Goodwin), Mr. W. Brookes was voted to the chair.

After expressing gratification at the large attendance at the exhibition, the report went on to say that the loss on the 1901 show had been more than made good by the result of last year's exhibition. The income amounted to £224 0*s.* 7½*d.*, including balance and special prize-money. Subscriptions obtained last year totalled £93 16*s.* After paying expenses and prize-money there was left a balance to the good of £74 5*s.* 7*d.* The chairman submitted the balance-sheet, and on his proposition, seconded by Mr. Rouse, the report and accounts were passed.

The following officers were then unanimously elected: Chairman, Mr. Thomas Driver; Secretary, Mr. J. Edwards; and Treasurer, Mr. J. Glenister. Seven representatives of professional gardeners and two of amateurs had to be elected on the committee. The following gentlemen were appointed:—Messrs. W. Brookes, G. Horsman, M. Greenwood, E. Hubbard, J. Gresty, G. Goodwin, and E. Polly (professionals); and G. H. Rouse and A. Chadwick (amateurs).

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

JANUARY 26.—On the foregoing date nearly 200 members of the above Association paid a visit to the new range of glasshouses recently erected for Messrs. Sutton & Sons, to inspect the fine collection of Primulas raised by the firm.

In the evening the ordinary fortnightly meeting was held in the Club Room, and Mr. W. Barnes, gr., Bearwood, the vice-chairman, presided. Much disappointment was felt that through illness the newly-elected chairman, Mr. J. T. Powell, was unable to give his lecture, "The Making of Sprays and Buttonholes;" but fortunately, Mr. J. Gibson, of Danesfield Gardens, and Mr. G. Stanton, of Park Place Gardens, kindly gave instead, "Winter Tomatos," and "Hardy Winter Berried Plants" respectively.

The only exhibit consisted of eight dishes of Sutton's Winter Beauty Tomato, exhibited by Mr. Gibson. Nine new members were elected.

BINFIELD (BERKS) AND DISTRICT HORTICULTURAL.

JANUARY 27.—The annual meeting of this Association was held on the above date, Mr. Bungay in the chair. The balance-sheet showed a satisfactory account of the finances of the Association. During the past year the library had been augmented by the addition of some good standard works.

The retiring Chairman (Mr. Bungay) was strongly urged to continue in office, but declined, as he considered a fresh one should be elected each year. Mr. Mason was then proposed and elected, with Mr. Woodman as Vice-Chairman. Mr. Paine was re-elected as Secretary.

BRISTOL & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

JANUARY 29.—The subject for discussion at the meeting of the Association, at St. John's Rooms on the above date, was "The Renovation of Aged Fruit-trees," by Mr. Neve, of the Reading Mutual Improvement Association. Full instructions as to the best method of improving the condition of such trees, instructions that were based on his own experience, he himself having now trees of eighty years of age which at one time were unfruitful, and are now in excellent bearing. He laid great stress upon inducing roots to come to the surface by means of top-dressings of farmyard manure, a heavy application of water and liquid-manure, and pointing over the ground lightly with a digging-fork. Pruning was a most important factor in the renovation of aged trees, and it should be very carefully done, removing weak shoots, and regulating the branches so as to let sun enter the head. Insects that infest fruit-trees were dealt with, and methods of destruction and prevention afforded. Mr. Binfield, Old Sneyd Park Gardens, occupied the Chair.

BECKENHAM HORTICULTURAL.

JANUARY 30.—On Friday, at the Church House, Mr. George Clinging gave an instructive lecture on Pears. Councillor Crease occupied the chair. He could not, he said, understand why Pears—so delicious when stewed—were not more generally appreciated, considering they could be bought so cheaply when in season. He always admired the French Pears as put on the market. English cultivators failed from lack of method in packing and grading; they also kept their fruit too long—buyers found it bruised and rotting.

The room was crowded, and a free discussion followed.

CHESTER PAXTON.

"How to improve our Exhibitions," was the subject down for discussion at the usual fortnightly meeting held on Saturday, Jan. 31. The Hon. Sec., Mr. G. P. Miln, in introducing this, gave a short epitome of the educational work of the Society, and traced the progress of its exhibitions from the time when they were first instituted in the Museum some sixteen years ago. Although they were at that time of a non-competitive character, they nevertheless were very successful, and served a good purpose in promoting the culture of hardy fruits throughout Cheshire and north Wales. He pointed out that after a few years they outgrew the available space at the Museum, the Town Hall having since been granted for this purpose. The popularity which the Society had attained was, he contended, largely due to the beautiful exhibits of Chrysanthemums which had been so much admired at the exhibitions of late years. The table decorations exhibited by ladies had also, he said, contributed to this popularity, as well as the classes for Grapes, bottled fruits, &c. Mr. Miln pleaded for greater attention to be given to the classes for single and naturally-grown Chrysanthemums, and strongly advised entirely doing away with the old fashioned Chrysanthemum boxes in favour of vases, in which the blooms can be seen to much better advantage. In conclusion, he also strongly urged the claims of hardy fruit, and hoped these would never be neglected at the expense of the other classes. An interesting and profitable discussion followed, in which the Chairman (Mr. N. F. Barnes, gr., Eaton Hall), and others took part. Several additional prizes and improvements were suggested, which the Committee promised to take into consideration when compiling the schedule of prizes for the next exhibition. The meeting closed with the customary vote of thanks.

LIVERPOOL HORTICULTURAL ASSOCIATION.

THE twenty-fourth annual general meeting of the above was held on Saturday last, Jan. 31, at the Secretary's office, Victoria Street, Mr. T. Foster, Chairman, of the Association presiding over a numerous attendance. The subscription list is the chief source of income by which the work of the Association is carried on. This year it amounts to £331 11*s.* 6*d.*, a capital result when one considers the numerous small shows in the suburban districts. The loss on the spring show was £120 0*s.* 1*d.*, on the autumn show of £104 16*s.* 4*d.*, and the balance in hand is about £253.

The retiring members were re-elected without opposition, the Chairman speaking in glowing terms of the Committee's work during the past year. Votes of thanks were passed to the chief officers, donors of special prizes, and not the least to Messrs. Ellis & Ranson, who have been instrumental in collecting subscriptions from the more remote districts. Sums of three and two guineas were voted respectively to the Gardeners' Royal Benevolent Institution, and the Royal Gardeners' Orphan Fund. *Orchid.*

NATIONAL CHRYSANTHEMUM.

FEBRUARY 2.—The annual meeting of this Society was held on Monday last, at the Albert Hotel, Buckingham Gate, Westminster, about sixty persons being present. In the absence of Sir Albert Rollitt, M.P., through illness, the chair was taken by Mr. Thos. Bevan, chairman of the Executive Committee.

The Secretary (Mr. R. Dean) read the lengthy minutes of the proceedings at the last general meeting, which were adopted.

EXTRACTS FROM THE REPORT OF THE EXECUTIVE COMMITTEE.

"It is under circumstances of peculiar interest, as they affect the future of the Society, that your committee make their annual report on this occasion. The long connection of the Society with the Royal Aquarium and Summer and Winter Garden Society, Ltd., has come to a termination through the sale of the building. For twenty-six years the Society's exhibitions have been held in the Aquarium. It was in November, 1877, that the Society, then known as the Borough of Hackney Chrysanthemum Society, commenced to hold its shows at Westminster, and the financial assistance secured by a donation to the Prize Fund operated to create increased interest in the work of the Society; a growth of membership followed, and eventually resulted in the change of the title of the Society to that of the National Chrysanthemum Society.

"Your committee have made an arrangement with the Crystal Palace Company to hold three exhibitions at Sydenham in 1903, namely, on October 6 and 7, two days; on November 10, 11, and 12, three days; and on December 8 and 9, two days; the sum of £200 to be given towards the prize schedules of the three shows.

"Though the altered circumstances of the Society will necessitate some revision of the schedule of prizes, your committee hope that by the institution of members' entrance fees, and the new regulations affecting miscellaneous exhibits—to maintain the high character of the Society's shows.

"The arrangements with the Crystal Palace Company are for one year only.

"During the past season the Floral Committee awarded sixteen First-class Certificates of Merit and eight Commendations.

"The present number of societies in affiliation is 130. The present number of members on the books is 645, viz., 77 Fellows and 569 ordinary members, in addition to the foreign list.

"The financial position of the Society is satisfactory, the balance in hand at the bank, as shown by the statement, is £68 9*s.* 6*d.* The Reserve Fund has been added to in the year by one donation of 10*s.* 6*d.*, and the interest on the deposit £1 16*s.* 7*d.* The total amount in the bank is £112 10*s.*"

The report of the Executive Committee, together with the balance-sheet, were taken as read, and on the proposition of Mr. Ballantyne, were adopted. Several points were raised upon matters mentioned in this report. Mr. Newell asked if the agreement with the Crystal Palace Company had been signed, and said that so far they had been unable to obtain the signature of the Crystal Palace Company. The secretary replied that he had written for the draft, but it had not yet been sent to him. Mr. D. B. Crane raised the question of holding three shows this year, and stated that it was proposed to offer £150 in prizes, and only £200 of this would be contributed by the Crystal Palace Company. He asked for an estimate of the receipts and expenditure for the year, but the matter was permitted to drop. One of the auditors (Mr. Tagg) strongly recommended the Society to concentrate their efforts in one large exhibition rather than three small ones. The Society's reduced income rendered this change very desirable. In answer to another question as to arrears due to the Society, the secretary said that of £78 19*s.* 6*d.* there had been received to date the sum of £33 11*s.*

ALTERATION OF RULES.

Two non-contentious amendments moved by the Secretary were passed unanimously. One of these referred to the appointment of delegates by affiliated societies, and the other will prevent the waste of time caused by the Floral Committee having to convene a special meeting after election to choose a Chairman for their own body. This will now be the preliminary business of the first ordinary meeting.

The third alteration was decidedly not acceptable to some present. It was moved by Mr. R. Kenyon to insert as an addition to Rule XIV. after the words "Executive Committee for approval," "No member of any Committee of the Society shall be eligible for nomination as a judge at any of the Society's exhibitions." Mr. Kenyon disclaimed any other motive for proposing this amendment than the best interests of the Society. It was not in the least degree designed against the *ex officio* officers.

A very animated debate followed, in which some feeling was manifested. The speakers included Messrs. Foster, Newell, Howe, Witty, McKerchar, Moorman, Langdon, Bevan, Simpson, Pearson, and several country members. The voting was by show of hands, and the tellers were Messrs. Taylor and McKerchar, who declared the amendment carried by 25 votes to 18.

ELECTION OF OFFICERS.

The President, Sir A. K. Rollit, M.P., having written that he would be unable to accept the position again, the names of several gentlemen were nominated, and the Secretary was authorised to communicate with them.

Mr. J. W. Moorman was re-elected with acclamation to the post of Treasurer, but in view of the amendment to Rule XIV which had been adopted, Mr. Moorman was unable to accept any active share in the Society's management, at any rate for a time. He did not object to the principle of the amendment, but complained that the agitation in favour of this was not what it should have been. Eventually Mr. Taylor was elected Treasurer, Mr. T. Bevan was re-elected Chairman of the Executive Committee, and Mr. Witty Vice-Chairman.

The re-election of the Foreign Corresponding Secretary (Mr. Harman Payne) and that of the General Secretary (Mr. R. Dean) was carried unanimously.

The following gentlemen were elected, or re-elected, members of the Executive Committee: Messrs. Newell, Lyne, Ingamells, Blick, Reeve, Hawes, J. Jones, Tapper,

Milsom, Windibank, E. Jones, English, Want, Smith, and Shearn.

On the recommendation of the Executive Committee the honorary Fellowship of the Society was conferred on the President of the French Chrysanthemum Society; and upon the proposition of Mr. B. Wynne, a hearty vote of thanks was passed to Mr. Moorman for services rendered to the Society. The opinion was general that the Executive Committee will subsequently recommend that a Honorary Fellowship be also conferred upon him. New members were elected, and the meeting terminated after sitting about three hours.

NATIONAL DAHLIA.

WE have received from Mr. P. W. Tulloch, Sterndale, New Church Road, Hove, the report of the above Society for 1902, together with the prize schedule for 1903. Compared with the report for 1901, issued ten months ago, the changes are as follows: the name of the Earl of Ilchester is added to the list of patrons; and that of Miss Willmott, V.M.H., to the list of patronesses. Mr. F. W. Sharpe has resigned his position as vice president, and Mr. J. F. Hudson, M.A., has been elected a vice-president in his place. Mr. Hudson thus retires from the position of hon. secretary, which he has so ably filled during the past six years, and Mr. P. W. Tulloch has been elected hon. secretary in his place. Mr. E. T. Cook has been elected to the vacant seat on the committee, caused by Mr. Tulloch's appointment. Compared with the date of issue of the last report, the membership show an increase of over 11 per cent., and the prize schedule for 1903 has been improved by the addition of four new prize trophies, as already notified. It may be added that negotiations are in progress for the holding a special exhibition of Dahlias by this Society at Manchester in September next.

A meeting of the Committee will be held in the room of the Horticultural Club, Hotel Windsor, Victoria Street, on Tuesday, February 10, at 12 o'clock (noon).

NOTICES OF BOOKS.

THE AMATÉUR'S GREENHOUSE. By T. W. Sanders.

THIS little book, the work of an experienced cultivator and a most diligent teacher, has been published by Messrs. W. H. & L. Collingridge. It deals with the construction, heating, and management of greenhouses, and the cultivation of the plants collected within them. After about 100 pages devoted to generalities, special instruction is given as to the nature and requirements of "popular greenhouse" plants, the names of which are arranged alphabetically. Botanical details are almost entirely omitted—not even the natural orders of the several genera being mentioned, and there is no monthly calendar of operations, although this is to a considerable extent to be gleaned by the reader himself from the sections on greenhouse management.

The plants are sometimes ranged under their popular names, e.g., Snowdrop, but the genus Galanthus is not entered separately. In other cases a different plan is followed; thus under the generic name "Solanum," the popular names "Jerusalem Cherry, Star Capsicum, and Jasmine nightshade" are given. To which, if to any, of the 900 species of Solanum do these names apply? To this question we may add another—does anybody make use of these so-called popular names at all? We have no intention to disparage the book by calling attention to these details; on the contrary, we heartily recommend it to the notice of the amateur, and remind the expert that he also may derive many valuable hints from this very serviceable little treatise.

AMERICAN HORTICULTURAL MANUAL. Part I. By J. L. Budd, assisted by N. S. Hansen. (New York: John Wiley & Sons; London: Chapman & Hall.)

THIS is an excellent work for the student, and will be handy for reference by the expert. It deals with "the leading principles and practices connected with the propagation, culture, and improvement of fruits, nuts, ornamental trees, shrubs, and plants in the United States, and Canada."

"In the days when gardening was a mere art, the operator was told what to do and how to do it. At this time the student is required to know not only how to perform a given work, but to give the reasons for doing it in a certain way in order to reach given results. In agricultural college work, at institutes, and at horticultural meetings, the discussion of practical details is now associated with the underlying principles that often border on science."

These extracts will suffice to show the general scope of the work, and as an illustration of the method pursued, we may advert to the chapters on seeds and seed-growth. In them are summarised the nature of the seed, seed-variation, seed-collection, seed-saving, stratification, and other details connected with the form and growth of the embryo plant from the seed, and the cultural details relating to the germination and the raising of seedling plants. Stems, roots, leaves, flowers, are treated in like manner; while special chapters are devoted to fruit trees, spraying, lawn and park trees, ornamental shrubs, bulbs, flowers, kitchen-garden plants, and irrigation. Systematic pomology is to be treated of in a second volume. Though intended mainly for transatlantic use, it will be found very serviceable on this side of the Atlantic also. This is a book which would be a most useful occupant of any gardener's book-shelf.

Obituary.

L. G. KING.—We much regret to have to announce the death of Mr. L. G. King, of the firm of Messrs. John K. King & Sons, of Coggeshall, Essex, and Reading, Berks, who passed away peacefully at Matlock on January 30 last, at the early age of thirty-five years. The deceased gentleman took an active and practical interest in the business; he was much esteemed in the neighbourhood of Coggeshall, where he resided, and was highly respected on Mark Lane and other markets by all who had business transactions with him. Great sympathy has been shown to his widow and other relations, as the family of the Kings are held in high esteem throughout East Anglia.

WILLIAM WILDER.—This old servant of the Turners died at Slough on the 28th ult., aged sixty-four, after a service of many years at the Royal Nursery. Going there when a lad after leaving school as an assistant in the seed shop, he ultimately became head shopman, and was at all times a painstaking and industrious servant, well-known and highly respected in the neighbourhood. He was a member of the church choir for the space of forty-four years.

ANSWERS TO CORRESPONDENTS.

BLACK INK FOR WRITING ON ZINC LABELS: *S. V.* The *Horticulturist's Rule-Book* gives the following receipt:—Verdigris, 1 oz.; Sal ammoniac, 1 oz.; lamp-black, ½ oz.; rain-water ½ pint. Mix in an earthernware mortar or jar, and put in a bottle. To be shaken before use, and a quill-pen to be used, on a clean surface.

CŒLOGYNE CRISTATA: *W. J. M.* The young growths might fail in the manner shown if watered overhead late in the day, and the temperature fell very low during the night, or from injudicious watering with liquid manure.

COPY IN FINE CONDITION OF KEMP'S "HOW TO LAY OUT A GARDEN": *S. G.* You should advertise the book in our columns.

CORRECTION: In the description of the water-wheel, *re* article on garden pumps in our last issue, fig. 33 was that of an "overshot," not an "undershot" wheel, as there described.

CYPRIPEDIUM FAIRRIEANUM: *C. L.* We believe it has been found that this species will cross with other species, but not with its own varieties.

CYPRIPEDIUM INSIGNE SANDERI: *C. L.* Yes, it is quite true that this beautiful variety comes true from seed. At least, we know that it has done so in Mr. Norman Cookson's garden.

GALVANISED WIRE NETTING TO EXCLUDE THE SMALLEST BIRDS: *F. S.* A $\frac{1}{10}$-inch mesh would do this. To exclude birds of all kinds from a fruit garden at all seasons has its drawbacks in the increase of insect pests above and below ground. We would rather protect the fruit when in season, and remove the nets for the rest of the year.

JAPANESE ARTICHOKES: *J. B.* Stachys Sieboldi, sometimes called by the French name, Crosnes.

MARKET FLOWERS: *F. B.* Our weekly market report will afford you a good idea of the kinds to cultivate for profit, and the prices obtained in London. The tastes of the buyer in London, as well as in your town, have to be studied in the matter of bunching, packing, &c.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*M. O. R.* 1, Cupressus macrocarpa; 4, Juniperus virginiana.—*W. B.* 1, Abies brachyphylla; 2, A. grandis; 4 and 5, Thuya occidentalis var.; 6, Juniperus sinensis var. squamata.—*R. S.* 1, Juniperus chinensis.—*G. R.* 1, Davallia Mooreana; 2, Platycerium alcicorne; 3, Asparagus procumbens; 4, Davallia pentaphylla; 5, Panicum plicatum; 6, Cheilanthes elegans.—*W. M.* 1, Davallia dissecta; 2, Asplenium nidus (Bird's-nest Fern); 3, probably Phœnix canariensis; 4, Chamædorea graminifolia; 5, Dracæna Reginæ; 6, Dracæna ornata; 7, Dracæna rubra.—*W. P., Northampton.* Dendrobium × chrysodiscus (Ainsworthi × Findlayanum).—*A. Y. O.* Narcissum maximus.—*J. W.* Nuttallia cerasiformis.—*H. C. C.* 1, Polypodium nigrescens; 2, Davallia canariensis; 3, Adiantum Waltoni; 4, Adiantum cuneatum; 5, Adiantum capillus-veneris variety; 6, Lastrea setigera cristata; 7, Davallia solida.—*G. B.* Streptosolen Jamesoni.—*W. W., N.B.* The spotted leaf is Richardia Elliottiana, and the plain leaf Richardia Pentlaudi; there seems to be no botanical difference, but in gardens they are distinguished as above.—*C. H.* Thunbergia erecta, more commonly known in gardens as Meyenia erecta.—*Veritas.* Cattleya Trianæ, and Phaius maculatus.—*W. O., Devizes.* Panax Victoriæ.—*H. J. G.* 1, Euonymus radicans, variegated form; 2, Pittosporum Tobira; 3, not recognised; 4, Choisya ternata; 5, Phillyrea angustifolia; 6, Pernettya mucronata.

NUMBER OF SQUARE YARDS IN AN ACRE OF LAND: *An Old Reader.* The number is 4,840, and treble that number if the turf be cut into strips of 1 yard long and 1 foot wide.

ORCHID SEED: *Miss Gould.* 1, The seed appears to be imperfect; 2, The seed seems perfect, but we have not yet examined microscopically.

ROSARIAN'S ADDRESS: *Hortus.* It is unknown to us.

ROYAL WARRANT: *E.* If you have supplied the King's establishment you can obtain what you require by making application to the Board of Green Cloth, Buckingham Palace.

WIREWORM: *F. W. S.* These are difficult to destroy, except by applying gas-lime as a top-dressing, and permitting no plant to occupy the land for a year or longer. Short of this radical remedy, you can intercrop with Lettuce sown thickly, or you can make holes with a dibber and insert the roots of Carrots, for which the wireworm has much partiality; these should be drawn out once or twice a week, and the creatures brushed off into a pailful of quicklime or scalding water.

COMMUNICATIONS RECEIVED.—W. M.—A. S.—Sir George King—S. A.—F. N. W.—J. H. V.—The Editor of *The Garden*—J. R. B.—M.—F. W. T.—W. H. P.—E. T. C.—The Editor of *The Gardener*—W. T. H.—*Garden Life*—E. M.—W. A. C.—H. J. E.—G. H. E.—A. S. (too late for this week's issue).—W. H.—Mac.—T. W.—Tulipa.—G. F.—W. J. P.—J. W. McHattie.—W. L.—H. S.—W. K.—W. A. C.—E. C.—S. G. B.—B.—H. M.—J. F.—L. M. May.—G. G.—A. Worsley.—J. H.—A. S. T.—S. C.—Young Gardener.—De B. Crawshay.

(*For Markets and Weather, see p. xiv.*)

View in the Rock-Garden, Kew: photographed by Mr. Stanley Philipson.

THE

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View in the gardens at Swallowfield Park, Reading (Supplement).

SWALLOWFIELD PARK, READING.

(*See Supplementary Illustration, and fig.* 44, *p.* 101.)

THE first thing that strikes the visitor to Swallowfield is the wonderful individuality of the place. Within 5 or 6 miles is Reading, busy and bustling with 20th century life, and yet, barely out of sight of its many chimneys, here is a garden which carries one back to those "good old times" when life, if stirring, was scarcely so strenuous as now. The marvellously fine trees in the grounds, the superb hedges of Box and Yew, that have probably not their equal in the country, not less than the gloomy cloister and quadrangle of the mansion itself, all teem with memories of the past.

Swallowfield Park has passed through a very chequered career; but it has contrived to bring into our own day much of its own individuality and that of its owners—it is essentially a place with a history.

In the Domesday-survey, Berkshire is divided into twenty-two hundreds, and about 200 manors, some forty-six of the latter being vested in the Crown. We find that in the hundred of "Cereledone," or Charlton, was placed "Soanesfelt," or "Swalfelle," now Swallowfield. Of considerable value in Saxon times, the Manor of Swalfelle fell to the lot of William FitzOsbern, the Lord of Breteuil, a faithful "dapifer" or steward of that sturdy raider William the Conqueror. The "dapifer" seems to have been greater at winning manors than his descendants were at keeping them, for the fortunes of the St. Johns, Despencers, De La Beches, and Beaumys were all linked up with those of Swallowfield, as it came to be called. Then we read of William Backhouse, the Rosicrucian, who died there in 1662, when the estate passed to his daughter, Dame Fflower Backhouse. This lady, at her third marriage, espoused Henry Hyde, Viscount Cornbury, the son of the famous Earl of Clarendon.

Contrary to report, no part of Lord Clarendon's *History of the Revolution* was written at Swallowfield, and there is also no truth in the rumour that Queen Anne was born there. It is quite correct, however, that Princess, afterwards Queen Anne, was a frequent visitor. John Evelyn, too, has much to say of Swallowfield. One of the entries in his *Diary* reads:—"This house is after the antient building of honourable geutlemen's houses . . . but the gardens and waters are as elegant as 'tis possible to make a flat by art and industrie." He writes, too, of "innumerable timber trees," of "an orchard of 1000 Golden and other Pippins," and of "walks and groves of Elms, Limes, and other trees."

Thomas, better known as "Diamond" Pitt, the ancestor of the celebrated Earl of Chatham, bought the estate in 1719, and so Swallowfield became mixed up with the Pitt Diamond. A bridge over the Blackwater in the park, built by him, still remains. To jump to the year 1820, we find Swallowfield coming by purchase to Sir Henry Russell, and it has remained in the hands of the Russell family till the present day.

Swallowfield Park now comprises about 2,400 acres, all of it rather flat and low-lying, seeing that it is here that the Loddon and Blackwater meet. The energies of these rivers in the past have bequeathed a special legacy in the shape of a very gravelly soil, which, enriched as it is with alluvial matter, suits many a fine tree to perfection. The pleasure-grounds are full of stately specimens. Few estates can boast of finer Oak timber—clean, handsome trunks with spreading heads everywhere abound. Curiously enough, the Turkey Oak (Quercus cerris) does not thrive. For a few years it grows apace; then, if two or three dry seasons come, it fades and dies. The Cork Oak (Q. suber), on the other hand, is suited exactly. One fine specimen is pointed out with pride as being the best in England, and when the size of the trunk and the spreading limbs, with the general healthiness of the subject, is taken into consideration, other Cork Oaks must look to their laurels. Elm has not been largely planted, yet there are some good trees. Of Conifers, one of the most notable examples is Pseudotsuga Douglasii, which, despite that reprehensible habit of snapping off its leaders, is of good height and feathered well to the ground; Pinus sylvestris does well, and there are several fine specimens of Cedrus Libani. Planes and American Hickories abound. Immediately in front of the south side of the mansion is a fine Catalpa bignonioides, which flowers freely and well each year.

The flower-garden proper is not very large; it seems to merge insensibly into pleasure-ground, with the charming Loddon and its characteristic scenery in the background. Once the Loddon is crossed, the lover of the natural may revel in the woods, where, at the time of my visit, the Snowdrops in their thousands were peeping from under the Hazel-stools to greet a more than usually mild February. Later will come the Bluebells all, like the Snowdrops, planted by Nature in one of her lavish moods.

Back to the house again by one of the numerous winding sylvan walks! We catch a glimpse o the last remains of the canal at its junction with the Loddon; formerly this canal ran close by the house. There it was that my Lord Clarendon used to fish; but the canal was filled up years ago, and the rustic bridges that once spanned it, no longer needed, have gone, like the fish.

The illustration which forms the Supplement for this week shows the principal part of the flower-garden proper, opening from the south front of the house. Bounded on two sides by a grassy bank, the beds themselves, as the illustration shows, are cut in the grass. At the time of my visit these were filled with Wallflowers and bulbs in variety, eked out with small decorative shrubs, amongst which the Golden Privet showed up strongly. Later on the visitor will be charmed with the taste displayed in the arrangement of the summer occupants of this flower-garden, but he or she will probably turn with even more pleasure to the shady nooks and the umbrageous walks that lead to the river.

The mansion itself is "quadrangular in plan, enclosing what was originally a complete cloister." Some of the arches have been filled in, but enough of them are left to demonstrate the old-world character of the structure, which is very solidly built.

There are nearly 6 acres of kitchen-garden, 4 acres being within walls. As the site has been a garden for many years, and many clever gardeners have at various times had charge, the soil has been developed to a high state of fertility. Showy gardening is not favoured, but of good fruit and vegetables there are plenty. In one respect, at least, the kitchen-garden at Swallowfield is unique, viz., in the artistic gateway by which admittance is gained. Itself a superb example of Italian art, this arch (which is shown in the second illustration, fig. 44, p. 101) at one time held a more pretentious position, for it spanned the entrance to the corridor leading to the great quadrangle. As the result of some "improvements," as they were then styled, it was taken from the corridor and set up to guard the entrance to the garden. More, the splendid carving was hidden beneath a wealth of trailing Ivy, and it is only recently, and owing to the initiative of Mr. Cole, the gardener, that this art treasure has been unveiled. The picture shows the panels of Ivy that remain, one on each side of the gate. The wall into which this archway is built is covered with thriving specimens of Magnolia grandiflera, which flowers with remarkable profusion each year. It is to be regretted that the photographer did not include in the picture a glimpse of the double row of Irish Yews, which lead from the great quadrangle to the archway; but he has given us a sight in the garden beyond of that fine Yew hedge, which recalls the times of John Evelyn of *Diary* fame. This hedge, which runs right across the vegetable garden from east to west, and bisects it, has a width of nearly 10 feet, and a height of about 9 feet. It is continuous, save at the points where the gravel walks, of which there are several, run through. It appears that this Yew-hedge was one of John Evelyn's great ideas, and, from all accounts, Swallowfield owes more than one of its present features to the same source.

Hardy fruit is particularly well done; the trees everywhere show signs of being in good hands. The Peach-wall displays Peaches in the height of condition, and the Plums could scarcely be more freely set with buds. The great feature of the hardy fruit is, however, supplied by what may be called a pergola of Pears. Imagine a continuous arch of single cordon Pears, with a span of between 6 and 7 feet, running for a

length of 94 yards, every tree healthy, vigorous, and well set with fruit-buds, and you will have an idea of what the Swallowfield Pear-pergola is like. In a good year many hundredweights of fruit are picked from this arch alone, the favourite varieties being Williams', Doyenné du Comice, Beurré Diel, and Marie Louise.

The glass department is extensive. Figs, Vines, and Peaches, are grown in great quantities in a large range of lean-to's, which run right across the kitchen garden at its northern end. The fruit-houses are flanked on each side by a span-roofed plant-house, where the usual collection of stove and greenhouse plants are accommodated. There is a number of other plant-houses, pits, and frames scattered about, all heated by two Trentham boilers in the stokehole at the back of the vineries. About 1,000 Strawberries are forced, and Royal Sovereign is the favourite. The inevitable Chrysanthemums are not forgotten, some thousand plants being grown.

Upon the day of my visit, Mr. Cole, the gardener, completed his tenth year of service at Swallowfield, and during that time he has seen not a few changes. Still, the changes in the appearance of the gardens and grounds themselves have all been in the right direction—indeed, it would be better to speak of them as "restorations." Than Lady Russell, the mother of the present baronet, few ladies are more keenly alive to the desirability of not allowing the new to swamp the old. Her ladyship's recently published book, *Swallowfield and its Owners*, to which I am indebted for much of the information here given, voices the same veneration for the past, and as long as she has a voice in the guiding of the destinies of the estate, these time-honoured features will be preserved. *A. S. G.*

OPUNTIA CANTABRIGIENSIS.*

THIS is a very fine plant, but I can find no single character which, embodied in a name, would serve to distinguish it from others; and I may therefore perhaps be pardoned for naming it as above. The name is justifiable from the fact that for many years the plant has been a feature of the Cambridge Botanic Garden—is, in fact, nowhere else so fine to this date, and from the circumstance of its wide distribution from Cambridge. It flowered first in 1900, and until that time was supposed to be O. Engelmanni, but a comparison with description immediately showed this to be wrong. At Kew the plant was at first supposed to be O. pseudo-Luna (see *Gardeners' Chronicle*, July 28, 1900, p. 64); but that species, like the true O. Engelmanni, has yellow spines; and by the courtesy of the Director, Sir William T. Thiselton-Dyer, K.C.M.G., a further examination was permitted in July of last year. He informed me that it did not appear to be typical O. Engelmanni, but that it might be a form of the variety cyclodes. A distinguishing name was thus necessary, and since, for practical purposes, it is quite distinct, I may safely pass over the difficult question of true systematic position, which can hardly be dealt with under the circumstances at present. My finest specimen is now 12 feet wide, 6 feet from front to back, and nearly 4 feet high. It was raised from cuttings taken from an older specimen in 1895, and it flowered with the original in 1900. The older specimen had been undisturbed for twelve years before it flowered, but hot summers apparently affected both specimens in the same way. At first only few flowers were produced, but the number on each specimen has increased each year from the first.

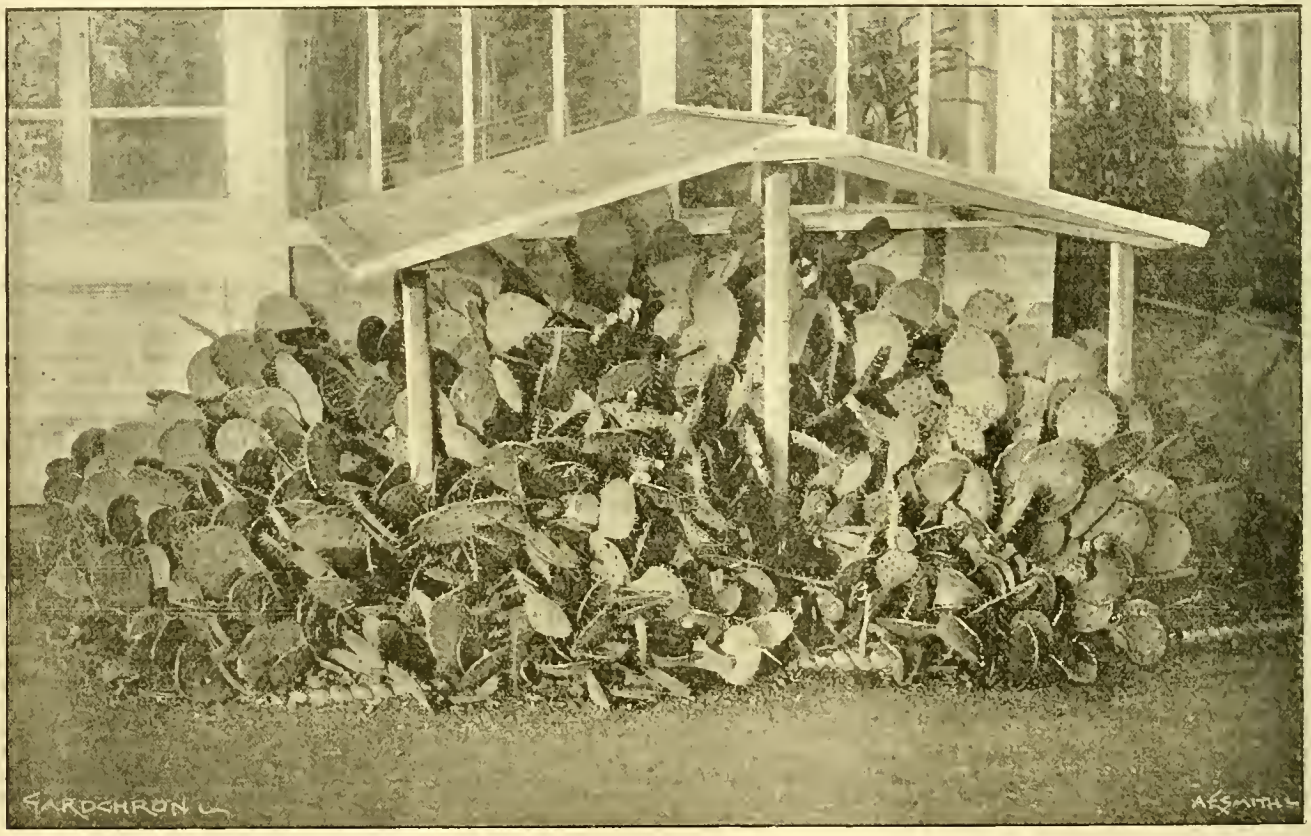

FIG. 42.—OPUNTIA CANTABRIGIENSIS IN THE BOTANIC GARDEN, CAMBRIDGE.

* *Opuntia cantabrigiensis.*—Decumbens, articulis late obovatis compressis, 16—24 cm. long, 12—17 cm. latis leviter glaucescentibus; pulvillis remotis setosis et armatis, aculeis 1—3 erectis, albidis 1—2 cm. long; floribus 1—7 ad articulum, flavis vel fulvo-flavis circa 9—14 cm. diam.; ovario late obconico, pulvillis setosis sub calyce armatis; sepalis circa 10 crassis deltoideis; petalis circa 20 obovato orbiculatis apiculatis; stigmatibus 10 viridibus in capitulum globosum sulcatum dispositis; bacca ovoidea 4 cm. long, rubra leviter glaucescente pulvillis brunneis; seminibus 3 mm. latis marginatis.

Planta robusta ad 1·20 m. alt.

O. Engelmanni var.? cyclodes, E. et B. affinis, sed articulis distincte obovatis.

Opuntia Engelmanni, *Gard. Chron.*, 1901, vol. xxx., p. 409, fig. 123, non O. Engelmanni, Salm., a qua differt imprimis spinis albidis nec non ovario obconico. Patria ignota. In *Hort. Cantab.*, per multos annos culta. *R. I. L.*

The accompanying illustration (fig. 42) shows the winter protection by means of small lights overhead. This species is hardy enough to stand all but the most exceptionally severe winters without protection, but it is conceivable that during a very wet winter the overgrown centre might rot—and moreover, fine specimens are worth extra care. The form of protection here illustrated is very convenient for more tender kinds, because it is easy to hang mats around, and to cover all over in case of necessity. The majority of the outdoor Opuntias are protected from wet by similar lights, but leaning against the walls and raised in front. With the protection illustrated, the true Opuntia monacantha has grown well, and flowered for several years past; a still more tender kind has also grown magnificently, but in these cases mats have been hung over and around when sharp frost might be expected. *R. Irwin Lynch, Botanic Garden, Cambridge.*

REVERSION IN ODONTOGLOSSUMS.

There are some enthusiasts who regard Orchids as having been specially created by Nature, and endowed by her with fixed characteristics; and there are some Odontoglossum specialists who believe their favourite genus to be *the one* where only that fixity of character and constancy of peculiarity is to be found.

Nature has decreed it otherwise, and though it may be almost heresy to say so, the hybridist will ere long prove that the two sections of collectors above mentioned have not fully grasped the inviolability of Nature's universal law, whereby she forbids confusion beyond certain limits, laid down so rigidly that we are powerless to overstep them. That law is "reversion."

In Orchidology there is at present no more absorbing topic than hybridity; for almost everyone is attempting to solve the difficulty. The results when continued for a few generations (of plants) will prove beyond a doubt that Orchids are only one of Nature's many ordinary vegetable creations, and are no more specialised than any other order of plants.

Down to the present time, very few have been able to raise and bloom Odontoglossums, and from the paucity of evidence, it may be thought that reversion will not enter into conflict with them.

I suppose that M. Charles Vuylsteke has raised and flowered more hybrids than anyone, and his results prove reversion in so decided a manner that it scarcely seems to need further elucidation; but the stronger and more diffused the evidence, the better the proof. He crossed a heavily-spotted O. Pescatorei with a still more heavily-blotched O. crispum (O. c. Franz Masereel), and produced as a result many absolutely unspotted hybrids, a few spotted forms, a still smaller number being finely blotched. Nature here at the outset begins to hold her children back.

M. Vuylsteke has not yet bloomed an O. crispum raised from the intercrossing of the spotted forms, nor one from a spotted form fecundated by an unspotted one.

I have always contended that any yellowing or spotting of the white of O. crispum and O. Pescatorei is the remains or result of hybridity, and M. Vuylsteke's results strengthen that contention, for the heavy markings of both parent plants are largely annihilated in the progeny. If they were the characters of species they would unite and produce a great majority of heavily marked hybrids, but being the result of hybridity they are nullified by "reversion."

An occasional "sport" seems to contradict this theory, but a stray case does not alter the general principle.

Prepotency is germane to this matter, and has lately been exemplified in O. waltoniense (figured in *Gardeners' Chronicle*, January 24, 1903, p. 51), raised upon a fine white unspotted crispum from a very heavily marked O. polyxanthum. The result, in the first plant to bloom, is a deep yellow flower, with one small spot in one sepal only, and a small transverse blotch (small compared to the heavy brown lip of polyxanthum) in each lip of the three blooms it bore.

We shall not have to wait very long for the results of raising seedlings from blotched forms of O. crispum. If these all come true, it will prove that a crispum can be white or blotched; but if they vary greatly and produce many unspotted forms, it will prove that a blotched crispum is a hybrid made by Nature, for some, perhaps a special, purpose.

Of course, anyone will admit that these blotched forms have seeded in their own habitat, yet there are no two in cultivation that are identical. Were they members of a true species the reverse would obtain, and there would be many alike.

Further proof lies in the fact that where one blotched form blooms from an importation, another does not appear like it. If they came true, it would only be reasonable to find many more in the same batch. That such is not the case, is the continual experience of all of us. *de B. Crawshay, February 4, 1903.*

ARAUCARIA IMBRICATA.

The specimen of Araucaria shown in fig. 43, though not amongst the very largest in this country, is one of the best specimens in the locality of Warminster, Wiltshire, and is certainly well grown and shapely. Its height is 44 feet, and the spread of branches 6 feet from the ground is 28 feet 6 inches. At the same distance from the ground the stem measures 5 feet 6 inches in circumference. Mr. H. Theodore Cookson, Sturford Mead, in whose garden the tree forms a feature of considerable attraction, kindly informs us that the age of the specimen is not known with certainty, but the impression exists that it was planted from forty-five to fifty years ago. The tree appears in vigorous health. Nine tiers of branches have been lopped off from the base.

Fig. 43.—Araucaria imbricata.

In the gardens of H. T. Cookson, Esq., Sturford Mead, Warminster. Height of tree, 44 feet; spread, 28 feet.

NEW OR NOTEWORTHY PLANTS.

MASDEVALLIA BURFORDIENSIS.

The flowering of a second plant of this fine Masdevallia by the Hon. Walter Rothschild, M.P., serves to establish the right of the Masdevallia burfordiensis for which Sir Trevor Lawrence, Bart., was accorded a Botanical Certificate at the Royal Horticultural Society, November 6, 1900, to its rank as a distinct species. M. burfordiensis is of the section "Coriaceæ," and nearest to M. angulata, Rchb. f., but differs from that species in its shorter leaves, longer and broader flowers, which have the greater part of their surface of a rich claret-purple colour, and in some other particulars. Leaves spatulate, coriaceous, and with a slightly roughened surface. Scape inclined forward, about 2 inches in length, and with generally two bracts; green, spotted with purple. Flowers large, and wax-like in texture. Tube of the perianth about three-quarters of an inch wide, and the same in depth; gibbous beneath. Free portion forming the sepals gradually diminishing, and continued into yellowish tails, the whole about 2 inches in length. Exterior of perianth whitish, with the spaces between the veining

heavily tinged with purple, the face being densely spotted and tinged with claret-purple, the lower portion also furnished with short violet-coloured papillæ. Petals spatulate, whitish, striped with rose-purple, the under side of the column being similarly coloured; blade of lip ligulate, channelled in the middle, and densely spotted and tinged with rose-purple. Flowers apple-scented. Both M. angulata and M. burfordiensis were collected by Consul F. C. Lehmann, who stated that they were from different localities, and called attention to the difference in their flowers. *J. O'B.*

CHINESE MAPLES.

(*Concluded from p.* 63.)

SPECIES WITH TRILOBED LEAVES.

9. *Acer Francheti*, Pax.—Hupeh. Now in cultivation in Coombe Wood. This is a shrub about 12 feet high. The leaves are trilobed, the lobes being triangular, with sharp remote serrations. It is a handsome species, and is near to the Himalayan A. villosum, Wall. The fruit is very large.

10. *Acer tenellum*, Pax.—Szechwan. In cultivation in Coombe Wood. This is a beautiful species, and is bound to become a favourite for planting. The leaves recall those of the Aspen; they are very thin in texture, and borne on long petioles; they shake with the slightest breeze. It is a shrub about 12 feet high. The leaves are small, trilobed, or in part undivided and wholly entire; they are cordate at the base. A figure of this species is given in Hooker's *Icones Plantarum*, t. 1,897.

11. *Acer Schœnermarkia*, Pax.—This is a Yunnan species, my No. 10,497. The leaves are tri-lobed, but as the tree is not in cultivation, I need not here give any more details.

12. *Acer, sp. nova* (?), collected by Mr. Wilson in Hupeh, and now in cultivation at Coombe Wood. This has trifid leaves and a racemose inflorescence. It seems to be quite distinct from A. trifidum, H. et A.

13. *Acer sp. nova* (?), collected by Mr. Wilson in Hupeh, and in cultivation at Coombe Wood. This has trifid leaves and a corymbose inflorescence.

SPECIES WITH FIVE-LOBED LEAVES.

14. *A. sinense*, Pax. This has 5-lobed cordate leaves, sharply serrulate towards the apex. It was found by me in Hupeh, but Mr. Wilson did not find ripe fruit, so it is not in cultivation at Coombe Wood.

15. *A. Campbelli*, Hk. f., an East Himalayan species. It is very close to the last, but differs in the caudate leaves, green on both sides, and 7-lobed leaves also occur in it. It was found by me in Yunnan, my No. 10,495.

16. *A. erosum*, Pax; Hupeh. In cultivation at Coombe Wood. This is the Chinese representative of the Japanese A. rufinerve, S. et Z. It is a shrub with cordate 5-lobed leaves. The margin of the leaves is irregularly serrato-dentate, the teeth being cuspidate.

17. *Acer Maximowiczii*, Pax; Hupeh. This is a 5-lobed species; the median lobe is very long. All the lobes are acuminate with doubly-serrated margins.

18. *Acer Oliverianum*, Pax; Hupeh. This is a 5-lobed species; the lobes are triangular in outline, with sharply serrulate margins. This is a very pretty species, and I do not know if Mr. Wilson obtained it, or if it is in cultivation at Coombe Wood.

19. *Acer laetum*, C. A. Mey., *var. cultratum*, Pax. Hupeh and Yunnan (my numbers 5347, 10872).—This is in cultivation at Coombe Wood. The leaves are five-lobed, truncate at the base, and with entire margins; it is a tree very graceful in habit.

SPECIES WITH FIVE TO SEVEN-LOBED LEAVES.

Acer palmatum, Thunb.—This common and variable Japanese species has hitherto not been found in China. Mr. Wilson met with it in the mountains of Hupeh, and plants from fruits collected by him are now growing at Coombe Wood.

21. *Acer sp.*, Hupeh; in collection at Coombe Wood.—This is intermediate between A. japonicum, Thunb., and A. circumlobatum, Maxim., and will doubtless be found to be a new and distinct species.

SPECIES WITH TRIFOLIOLATE LEAVES.

This is a remarkable section. The discovery in one Mid-China mountain range, of no great extent, some fifty miles long, of three new and distinct species, quite different from the three species of the same section occurring in Japan, is quite in accordance with my views of the extraordinary richness of the Chinese flora.

22. *Acer Henryi*, Pax; Hupeh, and neighbouring part of Szechwan.—In cultivation at Coombe Wood. This is a shrub or small tree. It has three entire leaflets, mounted on moderately long petiolules, and the inflorescence is spicate. In the Japanese A. cissifolium, Koch, the leaflets are deutate, and the inflorescence is racemose.

23. *Acer sutchuense*, Franchet. — The leaflets are lanceolate with serrate teeth. This is a beautiful species, occurring in Szechwan, close to the Hupeh border. Mr. Wilson apparently did not find any specimens of this tree.

24. *A. griseum*, Franchet.—This is the Chinese representative of the Japanese A. nikoense, Maxim., and occurs in the mountain range north of Ichang in the high forests. It is in cultivation at Coombe Wood, and is a most remarkable tree, attaining large dimensions. The bark is reddish, peeling off like a Birch; the leaves are very large, measuring 8 inches long by 9 inches wide, exclusive of the petiole; the leaflets have large teeth towards the apex. Their upper surface is glabrous and opaque. The under surface of the leaves and petiolules, &c., are densely pubescent.

The above list by no means exhausts the Chinese Maples; other species occur in the north of China and in the coast provinces, and I only had an opportunity of seeing part of Mr. Wilson's dried specimens—the lot collected by him in his first year at Ichang. *Augustine Henry.*

THE SEED TRADE, AND TREE SEEDS.

So far as foreign advices have come to hand respecting the yield of tree seeds, it would appear that, as in the cases of those of vegetables and flowers, there is a variable yield. Such a subject as Pinus sylvestris (Scotch Fir) yielded everywhere a short crop, and cones are scarce, and procurable at high prices only. In order to extract the seeds from the cones of scaly-fruited Coniferæ, such as the Scotch Fir, they have to be exposed to the heat of the sun, or dried on kilns by artificial means, until they are fully open, and the seed-grains are then thrashed out. Picea excelsa, Norway Spruce, shows in some of the seed-producing countries an average yield; and Larix europæa (Larch), in the forests of Germany and in the Tyrol, has yielded a small quantity of seed only. Pinus Strobus (Weymouth Pine) has given a satisfactory crop; that of P. austriaca (Austrian Pine) is a very poor one. The same may be said of Abies pectinata (the Silver Fir), though the yield is rather better of the two. It is the custom of the German collectors of the seed-cones of the foregoing to set up machinery, by means of which the seeds are extracted, with all the necessary precautions, and with as little deterioration as possible of their germinating qualities.

In some instances, deciduous tree seeds show short crops, the best yield coming from long distances. Quercus pedunculata, the common and the scarlet Oak, Q. rubra, have in some countries yielded good crops, but they appear to vary in bulk; the American Red Oak has yielded quite a small crop of seeds; the Black Oak, Q. robur, has a better result. It would appear that on the whole the foreign dealers have a good supply of Acorns. Acer platanoides, the Norway Maple, and A. pseudo-platanus (Sycamore), each show a medium crop of seeds; but there is quite a small yield of Alnus glutinosus (Alder) and A. incana, the white smooth Alder. There are good stocks of Betula alba (Birch), Carpinus betulus (Hornbeam), and Cratægus oxyacantha, the Whitethorn. Of Fraxinus excelsior (common Ash) there is a poor crop; Robinia pseudo-Acacia, a medium crop; the large-leaved and the small-leaved Limes have yielded very sparingly, and the same remark applies to Cytisus scoparius (Broom) and Ulex europæus (Furze). A fair amount of seed of the common Elm (Ulmus campestris) has been harvested. The common Broom is sown for coverts, from 15 lb. to 20 lb. per acre being used; it is occasionally sown for sheep-walks, for the purpose of affording the animals a supply of winter food, and though the sheep eat it, it has been thought, from its excessive bitterness of taste, and the diuretic qualities ascribed to it, that they take it rather in the way of medicine than for actual nourishment. Furze is also sown on sheep-walks, to the extent of 20 lb. to 30 lb. per acre; it is said the sheep thrive well on it during severe and snowy weather, while it forms an excellent covert, and when properly trimmed a dense sheltering hedge. *Pisum.*

ORCHID NOTES AND GLEANINGS.

ONCIDIUM WARSCEWICZII.

A PLANT of this very distinct, showy, and rare species is now in flower in the collection of R. I. Measures, Esq., Cambridge Lodge, Camberwell. The raceme has eight rich yellow flowers, each furnished with a long glumaceous bract, the singularly elongated labellum having reddish markings on each side of the middle portion. It is a native of Veragua and Costa Rica, and is found at an altitude of 8000 to 10,000 feet, and consequently it is most successfully cultivated in a cool house. It is sometimes met with in gardens under the name of O. bifrons.

ANGRÆCUM SESQUIPEDALE.

A singular abnormally constructed flower of this large species is sent by E. Roberts, Esq., F.R.A.S., Park Lodge, Eltham. It represents a star with four long segments, the petals being horizontally and the sepals (the two lateral joined) perpendicularly extended 7 inches from tip to tip. The flower appears to be spurless, but examination discloses the fact that the spur has been incorporated in the ovary. The labellum is reduced to an inconspicuous two-lobed blade, pressed so close to the face of the column as to appear part of it. The pollinia are perfect, and the whole flower irregular, though it be well developed.

CYPRIPEDIUM × ARGUS.

Under this name a beautiful cross-bred Cypripedium, with some of the features of the finely coloured C. × Lathamianum splendens, is sent by G. W. Law-Schofield, Esq., New Hall Hey, Rawtenstall, Manchester (gr., Mr. Shill). The upper sepal measures 2 inches; it is rich rose-purple, with yellowish base, white margin, and broad purple central band. Petals and lip similar to those of a large dark-coloured C. villosum, the upper halves of the petals being dark reddish-purple, and the lower halves yellowish tinged with purple. Lip also yellow tinged with purple.

NOTES FROM ISLEWORTH.

The Summer of 1902.—A sunless summer, and generally disappointing. The lawns and grass-walks were the chief glory of the past year, and never of late years have they kept so continuously green and beautiful. In the immediate vicinity of the house it is a great mistake to rely too much upon flowering plants for effect. The emerald-green of British lawns, and the dark sombre shades of our Conifers, form in themselves the best and most lasting harmony. By judicious use of deciduous trees, coloured either in spring or autumn, various Acers, Bamboos, &c., splendid colour effects can be produced.

The past season was one in which most exotics refused to flower well outside; Cannas were particularly disappointing. The flowering in the open of various exotic bulbs (usually grown under glass), which is made a feature in this garden, also proved a disappointment, especially the various Crinums, only Moorei and Powelli flowering well. Lycoris squamigera produced about a hundred flowering scapes, but the flowers were mostly poor, and lacked the vigour of previous years. Amaryllis also flowered sparingly, and Brunsvigias not at all.

Outside Bulbs.

Gladiolus, hort. "princeps."—I regard this as the finest Gladiolus ever introduced; it is, indeed, *facile princeps* in the genus, and should have the best place in every garden. It is also a first-class "cut" flower.

Tulips.—Among new or little-grown species, I was specially pleased with—

T. Mauriana, a splendid large late red, with pure yellow base.

T. Kolpakouskiana, after the type of Greigii, but a different shape.

T. armena, after the type of oculis solis; very variable in size.

T. Eichleri, the finest Tulip I have ever seen, which should be given the best place in every garden. Some forms are not so fine as others.

T. Lownii, a minute Violet-scented flower.

T. Billetiana, should be largely-grown; it lasts a long time in beauty, and changes from greenish-gold to canary-yellow with red markings.

T. triphylla aurea and T. Biebersteiniana are also worth growing.

Narcissus, hort. "King Alfred," as shown at the Royal Horticultural Society, marks an advance on anything yet seen in this genus. It promises to become a splendid garden plant when the time comes that it can be used for this purpose.

Inside Bulbs.

Hymenocallis macrostephana.—This fine hybrid is neither so well known nor so well grown as it deserves to be. Some gardeners condemn it as difficult to flower; this is not so if proper treatment is given. It retains the sun-loving character of one of its parents (Calathina), and should be placed in full sun directly the foliage is sufficiently toughened to stand it. In such positions, minimums of 55° to 60° are sufficient; manure-water should be given, but only sufficient to prevent the foliage flagging. Under this treatment, every full-sized bulb will flower at least once a year. Remember that this bulb is evergreen. For private greenhouses, it is undoubtedly the best in its class. The recently raised hybrid "Daphne" is the best form of the speciosa × Calathina hybrids yet raised, and is superior to the older hybrids.

Hymenocallis concinna.—I described this new Mexican species in the *Gard. Chron.* last June.

Crinum Wimbushi, C. Samueli.—These two new Crinums from Central Africa are in alliance with C. pauciflorum. I described them from my garden, for the first time, in *Gardeners' Chronicle*, Oct. 25, 1902. *A. Worsley.*

(To be continued.)

THE ROSARY.

ROSES OF RECENT INTRODUCTION.

Perhaps the most notable Rose that has been recently introduced is a pure white Hybrid Perpetual, a great improvement in form and colour on Merveille de Lyons. This variety has received from its eminent raiser the name of Frau Karl Druschki, and was introduced by P. Lambert in 1900. I have been informed that it was the result of a cross between Caroline Testout and Merveille de Lyons, and there can be no question that it has already proved itself worthy of such a distinguished parentage, combining as it does the finest attributes of both. It opens with the facility of Caroline Testout, while on the other hand it is much superior in colour and form to Merveille de Lyons; the latter of which, I may add parenthetically, was, at the period of its first appearance in this country, considerably over-estimated. Now that it has been so manifestly transcended by a Rose of greater purity derived from its vigorous self, it will take a secondary position, its proper place. It had, in any instance, already been surpassed by a much more valuable Rose for the garden, perhaps the grandest of all varieties for impressive effect, viz., Margaret Dickson.

Another remarkable Rose, introduced contemporaneously with Frau Karl Druschki, is Soleil d'Or (Pernet Ducher, 1900), which, though very much darker in colour, owing to its apricot or Nasturtium-red shading, very much resembles the beautiful Persian Yellow. I saw it at Waltham Cross for the first time two years ago; subsequently at the great Temple Show, where it was splendidly exhibited by that veteran rosarian, Mr. William Paul, and greatly admired. Other comparatively recent continental introductions of great promise are Madame Charles Monnier, a highly artistic hybrid Tea; Madame Jean Dupuy

Fig. 44.—Entrance to flower garden, Swallowfield Park, Berks. (see p. 97.)

(Photographed by F. Mason Good.)

Préfet Montiel, and Souvenir de Pierre Notting, which are likely to prove important acquisitions.

Recent British Roses have emanated for the most part from Newtownards in Ireland, Cheshunt, and Waltham Cross; Colchester and Oxford also contributing conspicuously. Perhaps the finest of Mr. William Paul's creations of late years have been Boadicea, which I had in splendid flower during last summer and autumn. Its colour is delicate peach, exquisitely tinted with pink and tenderest violet; Fortuna, apricot, with a suffusion of buff; Salmonea, and Morning Glow, which well sustain the reputation of the firm over which he presides.

From the famous nurseries of the Messrs. Dickson, at Newtownards, near Belfast, have come of late, Alice Lindsell, and Mildred Grant, which, like so many of their celebrated predecessors, have won the Gold Medal of the National Rose Society; Duchess of Portland, which has achieved the same distinction, and Lady Moyra Beauclerk, all of these being precious additions to the race of Hybrid Teas. Rosslyn, a somewhat older variety, introduced by them in 1900, rosy-flesh in colour, and splendidly effective, is a derivative from that uniquely lustrous Rose, much more beautiful than any of her descendants, Susanne-Marie Rodocanachi.

The latest productions of Mr. George Paul, the famous Cheshunt rosarian, have been Una and The Lion; hybrid Briars of a very fascinating character; Atro-purpurea, crimson in colour, deeply shaded with maroon, an extremely interesting hybrid Rugosa; and Lady Battersea, a richly hued addition to the Hybrid Teas.

Mr. Prince of Oxford, has given us Bellefleur, a single decorative variety of great interest, with a climbing tendency (which should be encouraged by cultivators), and perpetual in habit; also Marie Corelli, a pale salmon-pink sport from Susanne-Marie Rodocanachi; and therefore having Rosslyn as a beautiful sister Rose.

A pure pink form of Turner's Crimson Rambler should be regarded by rosarians as a charming possession, of this nature is the new Rose entitled Queen Alexandra, raised and introduced by the Messrs. Veitch of Chelsea.

To Mr. Frank Cant of Colchester, we are indebted for Lady Roberts, which owes its finest characteristics to Anna Olivier, though regarded as an improved version of that exquisite Rose; while the new varieties, also natives of Colchester, which bear the honoured names of Mr. and Mrs. Ben Cant, have gained the highest distinctions which the National Rose Society has the power to bestow. *David R. Williamson.*

GARDENING UNDER GLASS.*

(*Concluded from p. 84.*)

HEAT.—The temperature of the air and soil surrounding plants has an important influence on their growth and health. There is a minimum temperature at which each and every plant is brought to a state of absolute rest. For plants of temperate regions this minimum may be said, in general terms, to be at or a little above the freezing-point; for those of tropical regions it is some degrees higher. Under certain conditions, and when properly prepared, plants will support a comparatively low temperature for a considerable time without suffering, and even exposure for a short time to a very low temperature may not be fatal, the injury depending very much upon the proportion of water which the plant contains.

A variety of conditions may affect the power which a plant has of enduring exposure to extreme temperatures. Age exerts an important influence, the younger the plant the more sensitive it is. The conditions under which the plant has been grown must also be taken into consideration. Some plants are much more elastic in their adaptability to temperatures than others. For example, many plants cannot be forced; in other words, they will not develop leaves and flowers under the stimulus of a higher temperature than that which is normal to them. On the other hand, there are plants which respond readily to a high temperature. This adaptability is not peculiar to the plants of any order or genus, or even to the forms of a species. For instance, only a few of the many varieties of Azalea indica, of Camellia japonica, of Rhododendrons, and of Tulips, will bear forcing. The same is also true of various fruits, for instance, Grapes, Strawberries, &c. The same peculiarities occur with respect to the degree of cold that plants will support.

A plant has been likened to a steam-engine in its relation to heat. When the tension of the steam is slight, the machine is barely able to overcome the friction of its own parts, and under such circumstances can do little or no work. As the tension of the steam is increased the work increases also, until the point is reached when the maximum amount of work is done; beyond this the parts of the machine become strained, and a break-down may result. In the case of the plant, there is a point in the temperature barely sufficient to induce growth. With increasing heat there is a corresponding increase of growth, until a point is reached when the best growth is made; beyond this point the growth may indeed be quicker, but it is weak and lacking in stability.

There is a close correlation between heat and light in their effects on the growth of plants, expressed by the horticultural axiom: the brighter the light, the higher the temperature of the air may be. In sunny summer weather it is not difficult to balance these conditions, but we are afraid to make as much use of the sun in our glass-house gardening as we might do with advantage. We recognise the beneficial influence on growth of bright sunlight out-of-doors, but the same plants if by any chance placed under glass would be regularly shaded. If less shading were used in summer for plants under glass we should get sturdier growth, and better flowers and fruits than we do. The growth of the plants in the Succulent-house at Kew is a proof of this. That house is never shaded, consequently in summer when the sun is powerful the temperature of the air is high; and yet the plants grow and flower most satisfactorily. There is, of course, a limit with regard to temperature beyond which we must not go, but too often we fall short of that limit.

When the atmosphere in a plant-house is kept dry, a comparatively low temperature will suffice to maintain the plants in health during the winter. This is in many ways an advantage. Plants kept in these conditions are better able to withstand any sudden fall in temperature, consequent on a severe frost or the break-down of the heating apparatus; they also rest better, and will stand with greater vigour when the growing season again arrives. *W. Watson.*

* Paper read before the Kew Mutual Improvement Society, January 5, 1903, by Mr. W. Watson, Curator.

The Week's Work.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Cypripediums.—The varieties C. Charlesworthi and Spicerianum, when repotted, should be put into the same sort of compost as that advised in our last week's Calendar, keeping them a little above rather than below the rim of the pot. The first-named variety is injured by water at all seasons if given in excess, while the second will take plenty of water at the roots in the summer months. Plants that have been recently repotted should have the sides of the pots, and the staging or bed on which they are standing, frequently damped during the daytime, and the leaves moistened in sunny weather.

Seedlings.—If the raising of seedlings is carried on, there will be little plants at this season in need of pricking off. The operation if done forthwith will enable the plants to get established before the summer arrives. Seedlings of last year standing singly in small pots, if well rooted, may be afforded a slight shift, the plants growing apace after arriving at a certain age. The first pots employed should be either 1½ or 2 inches in diameter, and the potting compost consist of equal parts of peat and leaf-soil, and finely chopped living sphagnum being placed on the surface. Do not make the compost very compact. After this potting, a small quantity of loam may be added to the compost, and a more porous compost used till the plants come of flowering size, when a more substantial compost should be employed.

Sowing the Seed.—Seed which has ripened during the present winter may be sown on pots containing plants newly potted, affording the compost abundance of water a day before sowing. Much care must be exercised for some time after in affording water, till such time as the seed gets embedded in the compost; and the water should be allowed to soak in gradually, and occasionally the pots may be dipped in a vessel of water to half their depth, which will moisten the compost at the bottom of the pot. Seedlings often appear in the second year after sowing and even later, and the cultivator must have patience.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Anemones and Ranunculus. — Prepare beds, lines, or stations, for clumps by digging in rotten cow-dung or other mild manure, and set the former about 2 inches deep, and the Anemones 1 inch deeper. Both will root very readily if surrounded with sand or road-grit.

Alstrœmeria, Eucomis punctata, &c., may safely be planted now. The former frequently dies out in gardens after a hard winter, owing to the roots getting in the course of time too near to the surface. To obviate this loss, transplant the tubers once in three years, and bury them 7 inches deep. Eucomis punctata is quite hardy when the bulbs are set deep. It is seldom seen excepting as a pot plant, but in this condition is not nearly so fine as when growing in the open ground. Hyacinthus candicans bulbs must be planted early in order to get strong spikes, and it is an excellent plant either for massing by itself, or for planting in groups among herbaceous plants.

Borders of Herbaceous Perennials.—At the time of writing the weather is in every respect suitable for carrying out planting operations. Plants too, are getting very forward, so that unless the weather again becomes frosty, it will be advisable to push on with all dividing and replanting of plants that have been established for more than two years. Plants which form tufts are the better in the nature of things for division, and for being replanted at intervals of three years. In doing this, only the outer portions of the tufts should be used, securing those with the greatest possible number of roots, with very little of the old woody stems and roots. Most herbaceous perennials need much nutriment in the soil in which they will have to grow for the time named, and it should be in at the least two layers of well decayed stock-yard manure, and the soil trenched. The deep digging will stand the plant in good

service in times of great heat and drought. The scheme for replanting should receive much thought, in order that the plants are of suitable heights for the positions they will have to occupy, and the colours harmonise or contrast in a pleasing manner if these are displayed at the same time of year. In the matter of spring and early summer flowering plants, I prefer to have them in beds and borders by themselves, and to assign other borders to those which flower in summer and autumn. When planted in mixture, irrespective of seasons of flowering, the vacant spaces caused by the departure of the spring-flowering bulbs, Pæonies and the like, are sure to result in a certain amount of disappointment, and the case is only partially met by sowing quick-growing annuals, which scarcely ever seem to be in keeping with their neighbours.

New Varieties of Hardy Plants.—There are now many improved forms of certain herbaceous perennials, a fact that the gardener should not overlook when re-arranging his borders, and at the same time he should not discard old favourites till the newer ones have been tested. One observes, for instance, at horticultural shows, collections of Asters (Michaelmas Daisies) containing improved forms as regards that portion of the plant cut for show, but which when reproduced at home one finds at times some inherent defects in the plants, which robs one of the inclination to increase their number at the expense of others that are as good or better. Where strong established clumps of Hellebores grow and flower satisfactorily, do not disturb them, neither herbaceous Pæonies, and a few other plants that are the better for being let alone. The Doronicums, Heleniums, Chrysanthemums, and others of a rambling or rampant growth, belong to another class, and are the better for being dug up and divided into small pieces annually.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardeoer to J. B. Fortescue, Esq., Dropmore, Maidenhead.

The Spraying of Fruit-trees.—This work should be undertaken forthwith, as the blossom buds of Pears are commencing to swell. There are several alkali washes in use which are excellent for the purpose if used according to the directions sold with them, and an ordinary spraying syringe may be employed in distributing the wash over pyramids and espaliers; but for standard trees the garden engine is the better appliance, or, failing that, Stone's pneumatic spray-pump. The gardener who distributes the alkali wash should provide himself with india-rubber gloves, as the wash burns the hands, also the clothing. Spraying should be carried out in every garden where hardy fruit is grown, and if this were done annually the Codlin-moth and aphis would work much less harm to our fruit crops.

Strawberries.—Take advantage of dry days to clean up the Strawberry-beds and quarters. It will suffice to use the Dutch-hoe for stirring the land if the soil was lightly dug with a nearly worn out diggiug-fork in the autumn. Young plants set out last autumn must not have the crowns buried in the soil. Alpine varieties, if the seed was sown early last month, will now be above ground, and should be kept near the glass in a warm pit, and he afforded a small amount of ventilation on mild days, so afforded as not to chill the plants.

Hints on work in general.—The buds of Peaches and Apricots are developing fast in this part, rendering it necessary to finish quickly all nailing or tying. These johs finished, syringe the trees with diluted quassia extract. In the case of fruiting trees and bushes, the soil should be lightly turned in, burying all weeds and rubbish, and receive a dressing of fresh loam, pounded mortar-rubble, and plaster, &c., a 6-inch potful of bone-meal being added to each wheelbarrow load. Stake all newly planted trees, putting a simple loop round the stem, and stake with a bolster of moss, cloth, &c., between the bark and the latter. See that every rotten stake is replaced with a new one, and remove from the soil the decayed ends, these being apt to breed fungus, injurious to the roots of the trees. Collect all prunings and dislodged bark from the fruit borders and plantations, and burn them forthwith, so as to minimise the chances of infestation by pests of various sorts.

THE KITCHEN GARDEN.

By John Flemino, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Carrots, &c.—A sowing may now be made on a south border in gardens located on warm soils. Rub the seeds together with silver-sand between the palms, and sow in shallow drills drawn a foot apart, and if the seed be of 1902 harvest sow thinly. Before closing the drills, sprinkle the ground thickly with finely-sifted wood-ashes. Make sowings in cold frames for succession. Excellent varieties are Sutton's Scarlet Intermediate, Veitch's Scarlet Model, and Carter's Early Long Forcing. Sow Turnip-seed on a similar patch of ground, and as the birds are partial to the seeds in the early months whilst other food is scarce, protect the bed by stretching fish-nets over it at a short distance above the surface.

Lettuce.—The plants raised from recent sowings should be pricked off before they get drawn, and placed on slight hot-beds made of tree-leaves, keeping the boxes or pans near to the glass. Make a sowing in a cold frame or on a south border in quantity in accordance with probable requirements. Golden Queen and Harbinger are valuable early Cabbage varieties; Dwarf Perfection should be grown by all those who require a good early Cos variety. If the autumn-sown Lettuces standing in cold frames are likely to be consumed before the spring-sown ones are fit for consumption, replace them with plants from the open beds, planting them in frames standing on a hotbed having top-heat of 55°, and bottom-heat of 70°.

Cabbages.—Sow seeds in pans or boxes, and place in a warm frame or forcing-house, keeping them when the seed germinates close to the glass. The plants raised last month should be pricked off into cold frames, and those that were pricked out last autumn should have the soil between them stirred. Apply water with care, and do not let the plants get crowded together.

Brussels Sprouts.—Another sowing should now be made under glass for succession. Afford a treatment similar to that recommended for the Cabbage.

FRUITS UNDER GLASS.

By T. H. C.

Strawberries.—When the flowers are set, a mean temperature of 65° should be maintained in the Strawberry-house. Keep the plants close to the roof-glass, and syringe them twice a day, particularly the underside of the foliage, which will greatly help in keeping red-spider in check. At every application of water let much diluted liquid-manure be used, and now and then as a change some approved sort of artificial fertiliser. Ventilate upon every favourable occasion, but guard against cold currents of air. Damp down frequently in fine weather, and otherwise provide a moist atmosphere. Succession plants in flower should be fertilised daily, and be afforded a temperature of 50° to 55°. Keep up a succession by placing fresh batches of plants in the starting-pits at fortnightly intervals, the quantity being determined by the demand.

Pot Vines.—If started in November, the flowers of pot Vines will have set, and in some instances the bunches and berries will have been thinned. The crop of bunches should be commensurate with the condition of the plant; a strong cane will bring to perfection a dozen bunches of Black Hamburgh and Foster's Seedling, which are excellent varieties for early crops, and half-a-dozen is a sufficient number for canes to carry that are less strong. Commence to thin early, and in the case of the Black Hamburgh do little more than to remove imperfect berries this time. The bunches of Foster's Seedling will probably have more berries, and should therefore be thinned moro severely. In both cases the size of the matured berry must be borne in mind. Stop all lateral shoots, and keep the foliage clean. Red-spider is often troublesome among early Vines, and the infested leaves must be cleansed with soapy water and a piece of sponge as soon as this pest is observed. The roots being confined to pots, regular applications of manure in some form is necessary. Drainings of the bullock or cowsheds, or sheep or deer droppings steeped in water may he applied alternately. Such manure as Thomson's Vine or Le Fruitier sprinkled over the surface soil and carried down to the roots with tepid water, are of service. Maintain a temperature at night of 65° in fine weather, and by day one of 10° higher. Ventilate upon every favourable opportunity, and close early in the afternoon, allowing the warmth to rise to 80° or 85°. Syringe and damp all walls, paths, and other surfaces.

Succession Vineries.—Fertilise Vines in flower daily at mid-day, and when the air is dry affording ventilation if it be advisable. Tie down lateral shoots slightly, bringing them down to the wires by degrees, and not all on one day, otherwise they are apt to snap off.

The Muscat Vinery.—Muscat of Alexandria and the varieties of it require slightly more heat than other Vines, more particularly when flowering. Vines started early last month should be disbudded, leaving one bearing shoot to each spur, which should be stopped at one or two points beyond the bunch, according to the quantity of space between the main rods and between the spurs. Before the Vines flower, the border should be tested, and if the soil is found to be approaching dryness, apply water mixed with liquid-manure, and sprinkle an artificial manure over the surface. A night temperature of 65° at present, with a rise of 5° to 10° at the flowering stage, and a day temperature of 75° now, and rising 10° to 15° more when in flower, more or less according to the weather, will be suitable. Admit air with a rising temperature early in the forenoons on fine, bright days, this being a very important point during the setting period. Maintain a dry atmosphere to aid in the proper distribution of the pollen.

Grape Room.—Make a weekly examination of Grapes in bottles, and remove those that are decaying. Make sure that the bottom part of the lateral is in contact with the water, otherwise shrivelling of the berries will take place. Maintain a uniform temperature of 45°.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Stove Plants.—February being the best month in which to repot the general stock, an examination should be made of each plant as to whether more space at the root is required to maintain it in a healthy growing state for another season, or whether a top-dressing will suffice after removing a little of the surface soil. In any case, satisfy yourself that there exists perfect drainage. See that clean pots, peat, loam, and leaf-soil are prepared for use, and warmed to the temperature of the house before repotting is commenced. Avoid too large a shift; pots from 2 to 3 inches larger than those the plants are removed from usually suffice for the healthiest specimens; and should there be any plants not thriving satisfactorily, and it is necessary to retain them, most of the old soil should be shaken away or removed with a pointed stick, and such plants may be put into smaller pots, and afforded a gentle bottom-heat for a few weeks. For most stove plants a compost of about equal parts of fibrous loam and peat, and one-quarter of the whole of half-decayed leaf-soil, a little charcoal broken to the size of marbles, and sufficient river or coarse silver-sand to keep the whole porous, will be found suitable. Ixoras, Marantas, and Dipladenias thrive better in a greater proportion of peat, and they enjoy a brisk bottom-heat; but both can be grown and flowered well without bottom-heat. Those plants that show signs of new growth should be the first to take in hand, carefully removing the surface soil and crocks with a pointed stick. Place some rough leaf-soil, moss, or turfy compost upon the drainage material in the new pots, then work down the soil evenly around the ball of roots, making it firm with a potting-stick as filling-in proceeds. Reserve 1 inch space at the top for holding water, but the latter must be afforded with much care for some few weeks after this operation; and it is better to afford rather too little than too much. As the days lengthen and the sun gains more power, a slightly higher temperature may be afforded, viz., 63° to 68° at night according to the weather, rising to 75° or 80° with sun heat during the day. Admit air cautiously for the present, and spray the plants overhead with the syringe not later than 2 P.M

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, FEB. 19—Linnean Society meeting.
FRIDAY, FEB. 20—Surveyors' Inst., Ann. Dinner.

SALES FOR THE WEEK.

MONDAY and FRIDAY NEXT—
Perennials, Herbaceous Plants, Roses, Fruit Trees, &c., at Protheroe & Morris' Rooms, at 12.
TUESDAY, FEBRUARY 17—
Clearance Sale of Nursery Stock at The Nurseries, Shaw House, Melbourne, near Derby, by order of Messrs. J. Salsbury & Son, by Protheroe & Morris, at 11.30.
WEDNESDAY, FEBRUARY 18—
Azaleas, Rhododendrons, Palms, Roses, Herbaceous Plants, &c., by Protheroe & Morris, at 12—Roses. Rhododendrons, Japanese Lilies, &c., at Stevens' Rooms, at 12.30.
FRIDAY, FEBRUARY 20—
Imported and Established Orchids at Protheroe & Morris' Rooms, at 12.30.
(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —39·2°.

ACTUAL TEMPERATURES:—
LONDON.—*February* 11 (6 P.M.): Max. 53°; Min. 46°.
February 12 (Noon): fine; 52°.
PROVINCES.—*February* 11 (6 P.M.): Max. 50°, S.E. England; Min. 43°, N.E. Scotland.

The Royal Horticultural Society.

THE annual meeting of the Royal Horticultural Society on Tuesday last passed off, on the whole, very quietly. If the enthusiasm which characterised some previous meetings as to the erection of a suitable Hall was not so pronounced, it was, at least, obvious that no change had come over the minds of the Fellows, but rather that noisy enthusiasm had given place to fixed determination, which is a much more desirable quality. The criticisms on the design of the Hall were appropriately met by the President, who pointed out that similar criticisms were always forthcoming in the case of proposed new buildings. Philistinism at least knows what it wants, while æstheticism is apt to waste its energies on what is not practical. Suitability to purpose is more important than elegance of design; but there is really no need why the building should be ugly, and there is no reason whatever why the proportions of the building should not be such as to satisfy the artcritic and the requirements of those who have to use the building.

Of Mr. ELWES' criticisms, in so far as they were personal to himself, we have nothing to say; but as regards an amalgamation with the Royal Botanic which he suggested, we must say that the proposal is most distasteful. The Gardens in Regent's Park, indeed, are beautiful, and well suited for their purpose; but the methods pursued by the Society of late years have not been such as to commend themselves to horticulturists, still less to botanists. Moreover, the Gardens are not easy of access, and the Society is, we believe, deeply in debt. These are good reasons why the Royal Horticultural Society, which has higher aims, and has successfully carried them out, should hesitate to enter into any entangling alliance with the sister society.

That the Government has been unjust in utterly ignoring the Royal Horticultural Society, and over-benevolent to the Royal Botanic Society, which has done next to nothing to justify the concessions made to it, shows that either the Government knows nothing or does not realise what the Royal Horticultural Society has done. This, which would be matter of astonishment in a foreign country, is not surprising here, where we look askance on Government assistance—and look with much greater favour on individual enterprise in all cases where that is possible. We could not have a better example of Government bungling than that which is afforded by the treatment of the Royal Horticultural Society and of the Royal Botanic Society respectively.

As to the question of a new garden, Mr. ELWES raised the point whether the Society has the power to take action in that matter without a renewed consultation with the Fellows. Whether this be so or not, it is clear that the whole energies of the Society should, for the present, be concentrated on the erection of the Hall. When that is an accomplished fact, it will be time enough to consider the question of a new garden. We have a garden at present, and we are not obliged to quit it for many years to come. Surely it is best to remain as we are at Chiswick, at least till the new Hall, which is a much more urgent affair, is erected and endowed. That done, it will be time enough to consider the question of a new garden, and to entertain some proposals less preposterous than those which were put forth some few years since. We do not think the Council have the legal right to bargain away the Society's property at Chiswick without communicating with the Fellows; or if they have the right, we do not think it would be at all expedient for them to exercise it.

A dead set seems to have been made in certain quarters against Chiswick in defiance of all tradition and sentiment. The thin end of the wedge has been inserted, and every desire seems to exist to drive it home. The abandonment of Chiswick may sooner or later become inevitable; for our own part, we hope it may be later rather than sooner. There is no reason why, even at Chiswick, a scientific experimental garden should not be established, which would be more conducive to the good of horticulture, than the delusive trials now carried on there. But we are wandering from the urgency of the moment, which is the provision of a proper home for the Society. At present all our efforts should be concentrated on that, and all other matters should be postponed till that is accomplished.

A HARDY, RUBBER-YIELDING TREE.—Eucommia ulmoides was figured and described by Prof. D. OLIVER in HOOKER'S *Icones Plantarum*, tt. 1950 (1891), 2361 (1895), from specimens collected in the Province of Hupeh, China, by Dr. HENRY. It forms a tree 20 to 30 feet high, with a branch-system resembling that of the common Hazel, the deciduous leaves resembling those of the Elm; the flowers small, and unattractive; and the fruit in clusters, samaroid, winged, about an inch long, ¼ inch wide, each containing a single oblong seed. The genus is related to Trochodendron, Cercidiphyllum, and more distantly to Hamamelis. A plant of it was presented to Kew in November, 1897, by M. MAURICE DE VILMORIN, and in the space of four years it has grown from a small plant a foot high to a sturdy bush 7 feet high, and 6 feet through. It has stood the frost of that period in the open air without any protection, and appears to be quite as hardy as the Witch-Hazel. Cuttings of the branches root readily, and large branches of it may be successfully layered. This plant has a special interest from its caoutchouc-yielding property, as will be seen from the following note. "Tu-chung" (Eucommia ulmoides) is a native of Central China, where, according to Dr. HENRY, it is cultivated in the districts of Chang-yang and Patung, in Hupeh, N. lat. 35°; it is also, according to FAROÈS, cultivated in about the same latitude in eastern Sze-chuen, in the district of Tchen-keow-tin. A singular feature about this plant is the extraordinary abundance of an elastic gum in all the younger tissues, especially in the bark, the leaves, and petioles. Any of these snapped across when dry, and the parts drawn asunder, exhibit the silvery sheen of innumerable threads of this gum. The bark itself (to which, according to Dr. HENRY, tonic, invigorating, and other properties are ascribed) is a most valuable medicine with the Chinese, selling at 4s. to 8s. per lb. Further, the leaves are eaten when young, and the fruit is astringent. The merits of the Tu-chung as a caoutchouc-producing plant are entirely unknown; it is, however, deserving of notice. It would be likely to thrive in semi-tropical countries, such as Algeria and Florida, and in the mountainous parts of Southern India and the West Indies; it might also survive the winters of southern Europe (Morris, 1898). Messrs. VILMORIN, ANDRIEUX & Co., Paris, who offer young plants of the Eucommia, give the following particulars in their *Catalogue des Graines d'Orangerie, et de Serre pour* 1903:—"M. J. DYNOWSKI, the eminent Director of the Colonial Garden at Vincennes, has called attention to this tree, which contains in all its parts a notable quantity of gutta-percha of good quality. Unlike all other caoutchouc-yielding trees which are confined to the tropics, the Eucommia may be cultivated with success in a temperate climate. We have a plant which has stood for five years in the open air without protection, which has not suffered in the least, although the thermometer has fallen to —8° Cent. (17° Fahr.), and we believe it will support a temperature still lower than this." Plantations of this tree are being formed in France. There is good reason for believing that it would be worth while to plant it in the warmer parts of the British Islands as a probable source of rubber, and also for its medicinal properties. The Kew plant is in a border near the Economic-house (No. 12). *W. W., Kew.*

LINNEAN SOCIETY.—On the occasion of the meeting to be held on Thursday evening, Feb. 19, 1903, at 8 P.M., the following papers will be read:—1. "Electric Pulsation in Desmodium gyrans," by Prof. J. C. BOSE; 2. "Ceratapis Latania: a Remarkable Aphid," by Miss ALICE L. EMBLETON; 3. "Specialisation of Parasitism in the Erysiphaceæ," by Mr. S. E. SALMON, F.L.S.

BANANAS.—Messrs. ELDERS & FYFFES inform us that, in round figures, the consumption of Bananas during the past two years—i.e., since Mr. CHAMBERLAIN'S effort to aid Jamaica—has risen from 1½ million to 3½ million bunches per annum, which speaks eloquently for the growing popularity of this fruit.

SPRING CLEANING.—Gardeners, as well as other people, experience the necessity for this proceeding, on which account we may be excused for calling attention to the most expeditious and satisfactory method of carpet-cleaning we have ever witnessed. One day last week, seated calmly in the Editorial chair, we were startled by seeing what looked like a fire-hose raised in front of the window at which we were sitting, whilst in the street below was a red vehicle which might readily have been mistaken, for the moment, for a fire-engine. On investigation, the apparent fire-engine turned out to be an exhaust-pump, worked by steam, causing a vacuum in the hose-pipe. To one end of this pipe was attached a flattened nozzle with a horizontal slit. This nozzle was passed lightly over the carpets and over the chairs, curtains, &c., with the result that the dirt and dust—no inconsiderable quantities in Wellington Street, were sucked up through the nozzle into the pipe, and discharged into a receptacle in the vehicle below without a particle escaping into the room. A glass tube inserted into the pipe in its course enabled one to see the dust as it whirled its way from the room to the receptacle below. A strange sight it was! how many bacteria there might have been mixed with the dust cannot be stated. Enough to say, that in the course of an hour, two small offices were to all appearances thoroughly cleansed, without carpet or any article of furniture being moved from its place—think of that, housekeepers! Oh, that the managers of the District Railway would adopt the system, and substitute this speedy and efficient method for the perfunctory and wholly inadequate measures they now employ in cleaning (?) their carriages. Our readers may be assured that this is not a "puff," but a plain statement of experience, and that the work was accomplished by the Vacuum Cleaner Company, of 25, Victoria Street, Westminster, to whom we recommend our readers to apply for a prospectus.

GILBERT NABONNAND.—We regret to have to announce the death at Mandelieu, Alpes Maritimes, in his seventy-sixth year, of this distinguished rosarian. He graduated with GUILLOT of Lyons, and in 1861 he founded a nursery at Golfe Juan, where he cultivated a large number of the exotics which thrive in that climate, but is best known here by his culture of Roses. Among the Roses sent out by him are Bardon Job, Paul Nabonnand, Papa Gontier, and many others.

GARDEN AND FARM PRODUCE BY RAILWAY.—From the traffic superintendent of the Great Eastern Rail. Co., we learn that the number of farm produce boxes forwarded by passenger-train during the past half-year was 71,500; whilst during the same period for 1901 the company conveyed about 65,000—a difference of about 6,500 boxes; and a fair indication of the success attending the scheme.

BLUE HYDRANGEAS. — It appears from a communication of M. ANDRÉ to the *Revue Horticole*, that a certain soil near Angers, consisting of sand and humus, is made use of for the production of blue Hydrangeas with more or less success. The soil has been analysed and found to be chiefly silicious in its nature, but very rich in humus and organic matter, including nitrogen and with a fair proportion of phosphoric acid and iron. Potash and lime are in very small proportions, so that it is recommended to grow the plants in soil destitute of lime.

HONOURS TO HORTICULTURISTS.—From the *Revue Horticole* we learn that M. VIALA, the author of a valuable book on the diseases of the Vine, has been promoted to the grade of Officer of the Legion of Honour. M. DEBRIL and M. OPOIX, of the Luxemburg Garden, have been nominated Chevaliers. M. CROZY, of Hyères, has been appointed Commander of the "Merite Agricole." M. DANIEL, well known for his experiments in grafting, and many other gentlemen not so well known in this country, have been included among the Chevaliers of that Order.

MR. W. BROWNE, after thirty years' service, is retiring on a Civil Service pension from the superintendentship of the Royal Central Parks, London.

STOCK-TAKING: JANUARY.—The Trade and Navigation Returns for the month of January open with an enormous amount of alterations and additions—so numerous, indeed, as to preclude further notice; it is to be hoped they may prove helpful to those whom they concern. The imports for the month have decreased in value by £3,915,833—being £46,226,515, against £50,142,348 for the same period of 1902. The import of flour, grain, &c., decreased by £1,766,113—other dutiable articles by £1,835,815; these and other items including cocoa, £57,499; refined sugar, &c., £1,218,186: unrefined do., £343,344; tea, £355,822. The following items are from the new summary table:—

IMPORTS.	1902.	1903.	Difference.
	£	£	£
Total value ...	50,142,348	46,228,515	−3,915,833
Articles of food and drink—duty free	9,010,031	9,136,016	+125,982
Articles of food & drink—dutiable	11,911,172	8,309,244	−3,601,928
Raw materials and articles mainly unmanufactured	17,850,950	17,070,440	−780,510

We may note, on the subject of timber imports, that for January they amounted to £886,900, against £1,024,253 for the same month in 1902, or a decrease of £137,353. Fruit, roots, and vegetables next claim our attention, and the following table is culled from the figures in Section I. of the Returns:—

IMPORTS.	1902.	1903.	Difference.
Fruits, raw:—	Cwt.	Cwt.	Cwt.
Apples	186,989	297,893	+110,904
Apricots and Peaches	16	8	−8
Bananas... bunches	157,053	170,132	+13,079
Grapes	1,002	5,052	+4,050
Lemons	126,144	95,613	−30,531
Nuts—Almonds ...	14,316	7,711	−6,605
Others, used as food	36,363	31,909	−4,454
Oranges...	1,032,034	850,716	−181,318
Pears	557	1,276	+719
Plums	38	19	−19
Unenumerated, raw...	6,822	6,586	−236
Fruits, dried—			
Currants, for home consumption ...	82,927	40,592	−42,335
Raisins ,, ...	29,114	17,587	−11,527
Vegetables, raw:—			
Onions ... ...bush.	576,180	775,922	+199,742
Potatos ... ... owt.	285,001	210,424	−74,577
Tomatos... ... ,,	17,814	26,275	+8,461
Vegetables, raw, unenumerated ...value	£32,719	£29,578	−£3,141

"Minus" has certainly won this time; the popular demand seems to have fallen off, in sympathy with unfavourable crop returns. But colonial fruit is now on the seas for our market, and Cape Pears, &c., are to be seen on some stands. The—

EXPORTS

continue to show an increase in value and in variety. The values for the past month foot up at some £24,903,636, against £24,269,174 — an increase of £634,462. It is pleasant to have even a small increase to record in the face of the many sinister rumours afloat.

THE MIDLAND CARNATION AND PICOTEE SOCIETY. — The twelfth annual Report of this Society has just been published, and includes a very complete record of the exhibits at the exhibition in August last. It is proposed to hold the next show in the Botanical Gardens, Edgbaston, about the end of July, or early in August. The schedule of prizes offered is a liberal one, amounting to about £150.

ROYAL BOTANIC GARDEN.—An evening entertainment and concert was recently held in the Royal Botanic Garden, Regent's Park, as a reunion of past and present members of the Society's gardening school. Tea was provided in the classroom, and at its close the tables were cleared, and a capital programme of vocal and instrumental music followed, arranged in two parts, with Mr. E. F. HAWES in the chair. During an interval of the concert, and in suitable terms, Mr. F. J. WINSTONE, on behalf of the students, presented Mr. HAWES with a massive silver cruet set, as a mark of appreciation by the students of the excellent manner in which the work at the school had been conducted during the past year Mr. H. D. STREATFEILD was then presented with a silver-mounted letter-case, after which the concert was resumed and carried on to its close. This is the fifth occasion on which the work of Mr. HAWES has been publicly acknowledged by the various classes of students under his charge at the Royal Botanic Garden school.

—— The Secretary of the Royal Botanic Society informs us that Messrs. BARR & SONS have decided to hold their usual exhibition in the Gardens, from June 29 to July 6.

HOME CORRESPONDENCE.

PHEASANTS IN GARDENS.—In the *Gardeners' Chronicle* for January 27, "Enquirer" asked for directions to prevent pheasants from up-rooting and eating bulbs, &c. Sow "black sulphur" all over the beds, &c.; light sulphur will do, but black is stronger, and less conspicuous. Or water with diluted paraffin, using ½ pint of paraffin in 3 gallons of water. But this method needs to be applied more often than sulphur. *Wm. Lewis, East Sutton Park Gardens, Maidstone.*

—— We have lost thousands of Tulip-bulbs here from the pheasants, and the remedy is not simple. Where pheasants are permitted to make their home in the grounds near the house, they can at no time be depended on to abstain from eating bulbs—Tulips being only one kind—old as well as newly planted bulbs at any season of the year. I have had plants in flower destroyed as well as dormant bulbs. It is, too, a curious fact that pheasants will abstain from Tulips for several years and then suddenly begin to feed on them. They even exhibit a partiality for particular sorts, and some birds develop a stronger liking for the bulbs than others. On this account it was once suggested to kill those addicted to the vice, but that, of course, could not be entertained. Such a nasty preventive as common petroleum poured in such excess on the ground as to kill the bulbs has failed to check the birds. Latterly when planting Tulips and Crocuses, of which they are exceedingly fond, I have planted bulbs and corms at least 10 inches below the surface, and that, so far, has proved too deep for their intelligence. Deep planting, moreover, is a certain deterrent to the ravages of mice, but I cannot say it is equally so to rats. *B.*

—— When pheasants are allowed to acquire a taste for Tulip-bulbs, it is a difficult matter to stop them with anything short of getting the keeper to shoot them at the proper season. Of course, if the damage is being done in the close time, as it mostly is, there is nothing for it but to put wire-netting around the beds, and cover with strong herring or fruit-netting. If in a flower-garden near the mansion, a lot of netting round the beds does not improve the appearance of things, and it is sometimes

advisable to plant Tulips only where they can be protected, without the netting making an eyesore. Here we find pheasants troublesome in the kitchen-garden, with Brussels Sprouts, Broccoli, young Cabbages, Carnations, Aldboro' Anemones, &c.; but the last three or four winters I have found it a sufficient protection to surround the plots or beds with wire-netting 2½ to 3 feet high. Pheasants are stupid in some things; they may be seen to run round the netting, but are chary of flying into the enclosures. Of course, when the men are about, the pheasants have to move on to their own quarters, for, if encouraged to make a sanctuary of the garden, they are sure to cause loss of some one or other of the crops. Some of the plantations of Cabbages and Cauliflowers made in spring are rather large, and I run a line or two of wire-netting down the inside of the enclosure so as to prevent them flying into the larger open spaces. Tulips may sometimes be grown for a number of years without disturbance by pheasants; but if any of the bulbs are left about at lifting time, or laid-in with insufficient covering, some bird of an enquiring turn of mind is sure to find them out, and when another visit is paid it is always in company of other pheasants—then the mischief is done, as they will then search for Tulips, although they may have to dig for them with their beaks to a depth of 4 or 5 inches. *D. M.*

ROYAL GARDENERS' ORPHAN FUND.—Non-subscribing gardeners who may happen to notice in the gardening press that twenty-four candidates are to be elected this year without the trouble of seeking votes, must not think that the funds of the charity are so much better than they were, that their support is not needed, as the reason for this number being put on the fund is that twenty have to retire in 1903, which makes only four fresh candidates for this year; but in 1904 there will only be three retiring, so if there are many candidates for election next year, funds will be much needed. Looking over the annual report for the last year it is surprising to note the indifference of gardeners to this useful fund. How thankful we as a class should feel towards all who subscribe so handsomely to it, i.e., employers of gardeners, nurserymen, and many who live near gardeners and appreciate them as a class. Out of 1600 subscribers only about 300 are gardeners, or 1 to 5, which, I think, is not very creditable to our much-lauded fraternity. Approximately speaking, there are 7,000 head gardeners in the United Kingdom, of whom about 300 support this Fund, leaving 6,700 who are, as we may infer, indifferent to its claims on their pockets. As a test of this indifference, the Committee might this year send out 6,000 collecting cards, stating that they wished all to have an opportunity to give a little in appreciation of the blessings of peace and the recovery of our King, who appreciates a good gardener and a garden. If 5,000 gardeners would start this year with subscriptions of 5s. each, this would, when invested, support two candidates for ever. I need not say that 5,000 or 6,000 collecting cards should bring in a sum of £2,000 at least. Of course, Mr. Wynne would require help to address the above cards. *Jas. Hamilton, Duns, N.B.*

AGAVE AMERICANA.—I was much interested with the supplementary illustration in the *Gardeners' Chroniele*, January 31, and the article on the Agave in Britain. I have observed some good specimens of the Agave in the Scilly Isles, but I was of the opinion they were much too tender for planting out near London. There are two fair specimens planted in a garden near Farnham Station, which up to the present look well, although 17° of frost have been experienced. I shall note their appearance later on, for if they survive I shall try them in different positions in the gardens here. *W. J. P., gr., Frensham, Farnham.*

COLEUS THYRSOIDEUS.—The popularity of this beautiful winter-flowering greenhouse plant has resulted in diverse stories as to its origin. A correspondent asks if it is true that a nurseryman obtained it by crossing a blue Salvia with a Coleus [!]; another supposes that it is a sport from a coloured-leaved Coleus (C. Blumei var.). Whilst the breeder is nowadays doing much for the garden, Nature, unassisted except by the collector, must still be credited with some beautiful recent additions to garden plants, and among them I think this Coleus is one of the most valuable. Its history is as follows: In 1897 Mr. Alexander Whyte, F.L.S., when collecting in British Central Africa, found "a showy blue Labiate" growing in damp situations at 6,000 ft. elevation on the Nyika Plateau, east of the northern extremity of Lake Nyassa. He collected specimens, which were forwarded to Kew, and from them a few seeds were obtained. Shortly afterwards Mr. Mahon, at that time Assistant in the Botanical Department at Zomba, in British Central Africa, sent seeds of the Coleus to Kew, recommending it as a likely garden plant. From these two sources the original stock of plants as obtained at Kew, where they flowered in February, 1898. Plants were then liberally distributed to nurserymen and others. In 1899 the Kew treatment for this Coleus was published in the gardening papers, from which the following extract may be helpful to beginners: "Last summer the plants were grown in a greenhouse, where they formed bushes 2 feet high and wide. This year some plants raised from spring-struck cuttings are thriving planted out in a sunny border, the intention being to lift them and plant them in pots in the autumn." *W. Watson, Kew.*

—— With reference to this species I can endorse all that which Mr. Wadds has written in its favour in this journal, having grown a good batch of the plants last season from seed. The long spikes of vivid blue flowers reminding one of a good variety of Delphinium, make it a great acquisition for conservatory decoration, showing well when grouped together. Our plants were placed in a cool conservatory on December 15, and they are even at this date in fair condition. The longest flower-spikes on our plants are produced by those which are growing in 8-inch pots. When in full growth and showing bloom, I afford the plants manure-water. *H. Stark, Bournemouth.*

DAHLIAS.—Under this heading Mr. Tallack, p. 87, advises the propagation by cuttings of the varieties of which the stock-roots are not sufficient. I understand from this that if there are enough stock-roots they should be let alone, which is decidedly unadvisable, as except in very few cases it repays the gardener for his extra trouble to obtain young plants yearly. I shall not deal with the advantage of the system, this having been done on several occasions. Any further information from Mr. Tallack would be welcomed, as we cannot get too much of it, if it be on sound principles. *C. D. Z.*

STRAWBERRY PLANTS.—If possible, the land to be planted with forced plants, should have been well trenched and liberally manured some weeks previously, light loose soil rarely producing an abundant crop of fruit. I rarely use for forming beds the very early forced plants, except a few of the Vicomtesse for producing a second crop of fruit, but plants which have been only moderately forced and are fairly clean, and these usually fruit satisfactorily. I never care to keep the plants in the pots any longer than is really necessary to harden them off. Plants are sometimes very much injured by being kept in the pots long after having come out of the forcing-houses, and my practice is to stand the pots in any moderately cold place to slightly harden them, and then plant them out, loosening the roots and affording plenty of water before and after planting. If the land has been recently dug, plant low down and make very firm. *H. Markham, Wrotham Park, Barnet.*

SCOTTISH HORTICULTURAL ASSOCIATION.—The membership of the Association is so widespread that it seems hardly fair to debar any of its Scottish members, at least, from competing for any of its prizes, unless these have been specially given with the restrictions annexed. It is desirable to encourage the culture of the Chrysanthemum in and around Edinburgh, but the whole of the members of the Association are, as a body, responsible for the show, and its funds are liable for any deficiency which might occur. No one who knows anything of the Committee of the association will suppose for a moment that they desire "to bring grist to their own mill," but a good many will feel that they have been led into a mistake with the best of intentions. The matter is now beyond recall, but the Committee might well consider whether it would not be preferable another time to open this class to members resident in Scotland, if a restriction is required at all. *Another Country Member.*

WHAT IS A "PACKET"?—What is a "packet" of Sweet Peas, or any other seed? I have sent to one firm, who are advertising Sweet Peas, and find of one variety the packet contains twenty seeds, and of another fifteen, and of another only ten, although each is charged 1s. Take Tomatos again. I see some advertise 200 seeds for 3*d.*, while others charge 1s. to 2s. 6*d.* per packet, and do not give many over 100 seeds. I think it would be much more satisfactory to buyers if advertisers would state the number or the weight of seeds in a packet; or where the same-priced packets vary so much in quantity, would it not be much more satisfactory to buyers, and more honourable, if advertisers would mention that the number of seeds varies, according to circumstances? then purchasers would know better how many to buy. *Seedsman.*

THE FIRST DAFFODIL.—On Sunday, Feb. 8, we had a Daffodil fully in flower in the open. The position is exposed to the sun and wind, is 500 feet above sea-level, and six miles west of Birmingham. This is the earliest date a Daffodil has ever bloomed here. The variety is either N. minimus or nanus; it appears to be between the two, and is a stray plant which has come among some imported (collected) bulbs. *Jno. Pope, The Ericas, King's Norton.*

Obituary.

GEORGE UNDERDOWN.—A familiar figure has passed away with the demise of Mr. George Underdown, who was for nearly forty years head gardener and forester to the Right Hon. Sir John Kennaway, of Escot, East Devon. He took an especial interest in the management and culture of fruit trees, orchards in particular, which have been sadly neglected in Devonshire. As a judge of horticultural exhibits he was in much request, and was a member of the Devon and Exeter Horticultural Society's Committee. A most genial man, a faithful and valued servant, he will not only be greatly missed by his employers, but by a number of friends, who showed by their presence at the graveside on Monday, February 2, the respect in which he was held. He was sixty-four years of age, and has left a large family.

B. JOHNSON.—We learn with regret of the death on the 8th inst. of Mr. B. Johnson, for upwards of forty years head gardener at Swakeleys, Uxbridge, Middlesex, after a very short illness. He was greatly respected by all in and around the district, and enjoyed a high reputation among the gardening fraternity. He leaves a widow, who is at the time of writing seriously ill, and a grown-up family.

JAMES GLAISHER.—In his ninety-fourth year, the career of James Glaisher, the ardent meteorologist, the intrepid aëronaut, the zealous Chairman of the Palestine Exploration Fund, was brought to a close. He died on the 7th inst. at Croydon, and was buried at Shirley on the following Wednesday. Most readers are aware of his labours as a meteorologist. Observations and computations in the observatory did not satisfy him; he must extend his researches into the higher reaches of the atmosphere. To this end he made repeated ascents, but that on Sept 5, 1862, was the most remarkable. On that occasion, he and Mr. Coxwell ascended to a height of seven miles; a temperature below zero was experienced at an altitude of 5 miles, but above this the cold became so intense that Mr. Glaisher was no longer able to read his instruments, and became unconscious. His companion, Mr. Coxwell, was only in a slightly less degree incapaci-

tated; his hands were frostbitten, but he contrived to seize a rope with his teeth. The valve was thus opened, the gas escaped, and the balloon speedily descended into warmer regions, till it ultimately reached the ground near Ludlow. For many years Mr. Glaisher contributed the weather-table to the columns of this Journal, and his records and observations were in some respects more serviceable to our readers than those now published by the Meteorological Office. It was Mr. Glaisher also who, as a member of the Scientific Committee, collated and rendered available for comparison the meteorological observations made at Chiswick by the late Robert Thompson, for forty-three years of which weekly use is made in our columns, and in our annual Almanac. These records were printed in the *Journal of the Royal Horticultural Society* in South Kensington times, when much was done under unfavourable circumstances, to foster the interests of horticulture. These tables form one of the most complete records of the kind in existence, only comparable, we believe, with the Greenwich records.

ROBERT MACKELLAR.—We have much regret in announcing the death on January 28 of Mr. MacKellar, for very many years head gardener at Abney Hall, near Cheadle, Staffordshire. Deceased was a good gardener, and was widely respected. He has corresponded with this Journal frequently during the past quarter of a century.

FIG. 45.—LOURYA CAMPANULATA, AWARDED A BOTANICAL CERTIFICATE ON TUESDAY LAST. (SEE P. 108.)

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 10.—There was a very nice display at the fortnightly meeting of the Committees of this Society on Tuesday last, in the Drill Hall, Buckingham Gate, Westminster. Sufficient Orchids were forthcoming to furnish one of the long central tables, in addition to a number of novelties that were arranged upon the usual cross table. The awards to novelties included two First-class Certificates and four Awards of Merit. An Odontoglossum from NORMAN C. COOKSON, Esq., excited the greatest interest, and was admired by everyone.

The FLORAL COMMITTEE recommended but one award to a novelty, namely, a First-class Certificate to a new alpine species of Saxifraga from Albania. The groups before this Committee included Palms, various ornamental-foliaged plants, Chinese Primulas, Cyclamens, hardy flowers, &c.

No novelty gained an award from the FRUIT AND VEGETABLE COMMITTEE, but there were two excellent collections of Apples staged, one from J. B. FORTESCUE, Esq., Dropmore, and another from Messrs. GEO. BUNYARD & Co., Maidstone.

The annual general meeting of Fellows was held at o'clock in the canteen, which was packed to the uttermost extent. At this meeting there were elected seventy-eight new Fellows to the privileges of the Society. The attendance at the Hall throughout the day was unusually large, and most of the members of the various Committees were present.

Floral Committee.

Present: Geo. Bunyard, Esq. (in the Chair); and Messrs. J. Cheal, Geo. Woodward, W. Bates, S. Mortimer, A. Dean, W. Pope, W. Fyfe, H. J. Wright, H. Markham, Geo. Kelf, G. T. Miles, F. Q. Lane, G. H. Maycock, G. Norman, A. H. Pearson, W. Poupart, and J. Willard.

Messrs. W. BULL & SONS, 535, King's Road, Chelsea, exhibited a group of Palms in which a considerable number of species were represented. We noticed Phœnix hybrida = P. dactylifera × farinifera, P. senegalensis, Calamus flagellum, Latania Commersoni, Chrysalidocarpus (Areca) lutescens, Thrinax parviflora, Cocos Weddelliana, Livistona chinensis, Wallichia densiflora, Cocos plumosus, Pritchardia pacifica, Thrinax radiata, Ptychosperma Macarthuri, Pinanga maculata, Livistona Woodfordi, L. Wigani (Silver-gilt Banksian Medal).

Mr. H. B. MAY, Dyson's Road Nursery, Upper Edmonton, London, N., staged a group of plants, in which Adiantum tenerum Farleyense was conspicuous, as well as other good Ferns, including Polypodium Mayii; also choice varieties of Codiæums, as Alexander II., a broad-leaved variety of bright colour; Warreni, Countess, ruberrimus, &c.; Davallia tenuifolia Veitchi, Aralia Chabrieri, and Hydrangea japonica variegata. Cordyline (Dracæna) His Majesty is a bright-coloured plant of nice habit, and the variety Edmontoniensis has narrower leaves of rather deeper colour (Silver Flora Medal).

Messrs. THOS. S. WARE, Ltd., Hale Farm Nurseries, Feltham, London, exhibited quite a bright bank of hardy plants in flower in pots. There were many varieties of Narcissus, and in addition Dielytra spectabilis, Hyacinthus azureus, Muscari botryoides, &c.; Hepatica triloba in variety, Iris histrioides, I. sindjarensis, &c.; Snowdrops, Crocuses, Cyclamen Coum album, &c. (Silver-gilt Banksian Medal).

Mr. JOHN RUSSELL, Richmond Nurseries, Surrey, exhibited a group of shrubs in pots, and these were interspersed with forced flowering shrubs. Amongst these latter were large plants of Daphne Mezereon and Prunus triloba. The shrubs included tree Ivies, Hollies, young Conifers, Cotoneaster microphylla, Aucubas, Eurya, Berberis Beali, &c. (Silver Flora Medal).

Messrs. JAS. VEITCH & SONS, Ltd., Royal Exotic Nurseries, King's Road, Chelsea, again exhibited a number of fine plants of the new flowering Coleus, C. thyrsoideus, in full flower; also a group of strong flowering plants of Primula × Kewensis, a hybrid from P. floribunda and P. verticillata, see fig. 63 in *Gard. Chron.*, March 31, 1900. For general purposes it is similar to P. floribunda, but has a much stronger habit, and produces its yellow flowers in great profusion. Flowers were also shown of a good strain of Chinese Primula (Silver Flora Medal).

Messrs. H. CANNELL & SONS, Swanley, Kent, made a display of Primula sinensis varieties, and showed some varieties of the stellata type in good condition. One of the best of these was named Fashion, and had a profusion of good-sized flowers of rich pink colour, with a white eye; The Queen and Cannell's White are also good varieties of the same section. Amongst the florist's or older strain were Eynsford White and Eynsford Purple, My Favourite (pink), alba lutea, Pink Queen, Swanley Blue, H. Cannell, &c. (Silver Banksian Medal).

Carnations were again exhibited by Messrs. W. CUTBUSH & SONS, Highgate, London, who had fine cut flowers of new and choice varieties they have shown previously, including the excellent Mrs. S. J. Brookes, white; Mrs. T. W. Lawson; Sir Hector MacDouald, pink; and Viscount Kitchener, white, with scarlet markings.

Mr. J. R. BOX, Croydon, exhibited a small group of Cinerarias, and some fine plants about 3 feet high of Begonia Gloire de Sceaux. The large rich pink-coloured flowers of this variety, and the dark, metallic-looking foliage, make it exceedingly decorative.

Three seedling varieties of Hippeastrum were shown by Mr. E. Hill, from Lord ROTHSCHILD'S garden at Tring Park, Tring. They were not without merit, but failed to secure a distinctive Award.

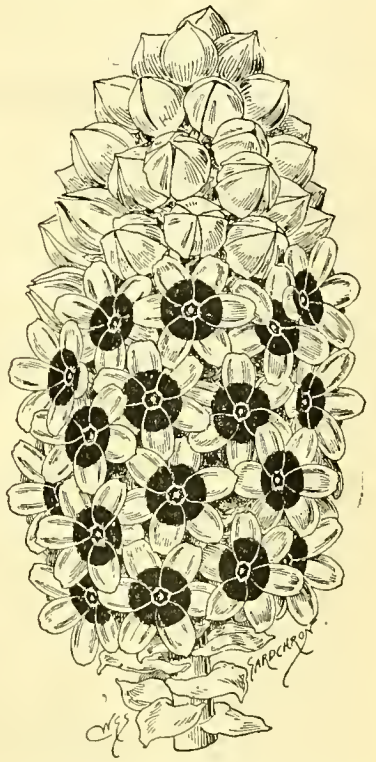

FIG. 46.—INFLORESCENCE OF LOURYA CAMPANULATA. (SEE P. 108.)
(Flowers snow-white, with a purplish centre.)

Messrs. R. WALLACE & Co., Kilnfield Gardens, Colchester, exhibited a small collection of early-flowering alpines—bulbous and other, in nice bloom generally. There were among them Iris Tauri, I. histrioides, and I. stylosa speciosa; a panful of Hepaticas, including the single-flowered white variety, Adonis amurensis, Muscari azureum, Anemone blanda, Primula megasæfolia, Colchicum libanoticum, &c.

Lord JERSEY, Osterley Park, Isleworth (gr., Mr. F. Hawkes), showed a gay looking group of Cyclamens in variety, having Euphorbia Jacquiniæflora, as cut shoots in bloom, and pyramidal plants in the background of Begonia Gloire de Sceaux (Vote of Thanks).

Messrs. SUTTON & SONS, Reading, showed some forty plants of their new Imperial Strain of Cinerarias, consisting of large-flowered corymbs, and in some instances of fairly refined forms and new tints in so far as light blue and pinks are concerned. As regards the individual flowers, we may expect to find in the course of time considerable improvement, but in stature, size of corymb, and general vigour, nothing would seem to be called for (Vote of Thanks).

Messrs. HUGH LOW & Co., Bush Hill Park, London, N., made a pleasing exhibit of forced plants, including

Indian Azaleas, Simon Marner, double flowered, pink; Deutsche Perle, the old Vervaeniana, and Professor Wolters; Toxicophlœa spectabilis, Lilac in variety; and Genistas, Cyclamens, Lily of the Valley, Funkia subcordata, Epacris, mixed with dwarf-growing species of Ferns forming the setting, and a few Palms the background to the group.

Messrs. BARR & SON, 11, 12, and 13, King Street, Covent Garden, exhibited a small collection of hardy flowering subjects, including Helleborus guttatus sub-punctatus, antiquorum roseum, H. Olympicus, flower white and green; H. niger, with a faint pink flush on the petals that is not common; Galanthus Elwesii, prettily in bloom; Cyclamen Coum album, C. C. rubrum, Narcissus cyclamineus major, and Snowdrops set in a bed of moss. There were forming part of the exhibit a plant of Daphne Mezereum album, a branch of Forsythia suspensa in bloom, tufts of Erica carnea, Tazetta Narcissus, the bulbs closely packed together in shallow bowls, &c.

Mr. JOHN MAY, Gordon Nursery, St. Margarets, Twickenham, showed Cyclamen grandiflorum in white, crimson, rose, pink, rosy-purple, and other shades of colour, the flowers being mostly of large size, and thrown up well above the leaves. The plants were admirably grown and flowered (Silver-gilt Banksian Medal).

Awards.

Lourya campanulata (figs. 45, 46).—A nice plant of this curious Hæmadoraceous genus, from Cochin-China was shown by Mr. LEOPOLD DE ROTHSCHILD, Gunnersbury House, Acton (gr., J. Hudson). In general appearance, the plant resembles an Aspidistra, but the flowers although produced at the base like those of Aspidistra, are larger and more showy, the inflorescence being also more elongated. The fruit is a blue berry, and being produced in considerable clusters is very effective (Botanical Certificate).

Saxifraga Grisebachii.—This pretty little alpine species, newly imported from Albania, was shown by Mr. G. REUTHE, Wensleydale, Hanworth Road, Feltham, and by Messrs. R. VEITCH & SONS, Exeter. The plants are very dwarf, and the flowering growths apparently about 3½ inches high. These growths and the bracts are very hairy, and reddish-purple in colour. The tiny flowers have red petals (First-class Certificate).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), Norman C. Cookson, de B. Crawshay, H. Ballantine, W. Cobb, W. A. Bilney, E. Hill, Francis Wellesley, H. T. Pitt, J. W. Potter, H. A. Tracy, H. J. Chapman, A. A. McBean, T. W. Bond, M. Gleeson, J. W. Odell, W. Boxall, W. H. Young, W. H. White, F. J. Thorne, F. W. Ashton, H. Little, and J. G. Fowler.

There was a very fine show of Orchids, an unusually large number of groups being staged, and over fifty subjects entered to go before the Committee. But among all the beautiful things shown, the phenomenal blotched Odontoglossum crispum Cooksoniæ, shown by NORMAN C. COOKSON, Esq., formed the centre of attraction. It was generally conceded by experts that it was without exception the finest Odontoglossum of its class ever shown. The Committee awarded it a First-class Certificate (see Awards) (fig. 47).

Sir TREVOR LAWRENCE, Bart., Burford (gr., Mr. W. H. White), staged a fine group, that consisted largely of the fine hybrid Dendrobiums raised at Burford. Among he many fine plants heavily laden with flowers were Dendrobium × Juno, D. Wiganiæ and its fine yellow variety xanthocheilum, D. × xanthocentrum pallens, D. × Cybele, D. × Curtisii, D. × Hebe, Sophro Lælia × Psyche, the yellow Sophronitis Rossiteriana, Lælio-Cattleya × Adolphus, L.-C. Mrs. Gratrix, and other showy kinds; and some botanical Orchids grown into charming specimens (Silver Flora Medal).

Captain G. L. HOLFORD, Westonbirt (gr., Mr. H. Alexander), showed a group of rare and well grown Orchids, including the handsome Odontoglossum × loochristiense "Lady Victoria Grenfell," which had previously secured an award; Lælio-Cattleya × Afterglow, a fine bright yellow flower, with many on a spike; L.-C. × Doris; Miltonia × Bleuana grandiflora, very large, and nearly white; Lycaste × Mary Gratrix, with seven fine ruby-tinted flowers; Selenipedium × Schroderæ candidulum, Odontoglossum × Adrianæ, and O. × Wilckeanum, both fine (Silver Flora Medal).

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), showed a fine group of Odontoglossums, backed by seven fine plants of Oncidium splendidum. The group included Dendrobium atro-violaceum, D. pallens, Epidendrum × Endresio-Wallisii, Lycastes, Cœlogynes, fine forms and others; besides the singular-looking Bulbophyllum rufinum, and B. Pittianum. Of the Cypripediums, C. × Ajax and C. × Stanley James Pitt were new, distinct and good; Cattleya Trianæ, Phalænopsis, and Vandas were represented (Silver Flora Medal).

J. COLMAN, Esq., Gatton Park (gr., Mr. W. P. Bound), had an effective group, principally of white forms of Lælia anceps and hybrid Dendrobiums. Among the former were noted the rare L. a. Waddoniensis, and of the latter D. × Ainsworthi Colmani was the best, its fine flowers being heavily tinted with purple, and the labellum with dark claret colour. Masdevallia × Courtauldiana, M. tovarensis, and various Cypripediums were also good (Silver Flora Medal).

Messrs. SANDER & SONS, St. Albans, secured the premier award for groups, viz., a Silver-gilt Flora Medal for a good display of fine subjects. There were three very fine forms of Odontoglossum × Wilckeanum, named respectively Fascinator, Illuminator, and Rex, the last-named taking the fancy of the Orchid Committee most, and securing an award. Among the Cypripediums were the new C. × Illustre (Lathamianum × nitens, Sanders' variety), a very handsome flower, with a fine white dorsal sepal, having a broad chocolate-purple band; C. × Ilione (Lynchianum × insigne Harefield), very distinct. At the ends of the group a number of fine forms of Phaius × Norman, P. × Marthæ, and other hybrids, and a profusely-flowered Pleurothallis Roezlii, with many racemes of flowers, were displayed.

Messrs. J. VEITCH & SONS, Chelsea, S.W., showed a group of hybrid Cypripediums, &c., including some fine forms of C. × Hera, Euryades, C. × Leonidas, C. × Lathamianum, C. × Actæus, hybrid Lælio-Cattleyas, Dendrobiums, &c. (Silver Flora Medal).

Messrs. HUGH LOW & Co., Bush Hill Park, staged a group of Dendrobiums, Odontoglossums, Cypripediums, &c. C. × Olivia was finely represented, also C. × orphanum and C. × Euryades (Silver Flora Medal).

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. Gilbert), showed his fine Lælio-Cattleya × Wellsiana magnifica (see Awards), Cattleya chocoensis, Westfield variety, a very pretty white-petalled flower, and a good Cypripedium × Hera Euryades.

NORMAN C. COOKSON, Esq., Wylam, showed Phaio-Calanthe × Ruby; and a hybrid Calanthe, flowering in eleven months from the sowing.

F. A. REHDER, Esq. (gr., Mr. Norris), sent Cypripedium × Ianthe superbum, and a neatly formed cross, named C. × Tia, whose flower is between it and C. exul.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, showed Cattleya × Enid (Mossiæ × Warscewiczii), intermediate between the parents; Cypripedium × Hera Madeline, with a very handsome dorsal sepal; Miltonia Endresii, Cattleya Trianæ delicata, the fine yellow and brown Odontoglossum × Harryanum triumphans, Lælio-Cattleya × Sunray, L.-C. × luminosa, Miltonia × Bleuana grandiflora, &c.

M. LOUIS FOURNIER, Marseilles (gr., Mr. Cleverley), sent a flower of fine form of L.-C. × luminosa.

Sir F. WIGAN, Bart. (gr., Mr. W. H. Young), showed Cypripedium × Eira (Chamberlainianum × concolor).

Messrs. STANLEY, ASHTON & Co., Southgate, showed Odontoglossum × Ruckero-triumphans, a pretty hybrid with a yellow ground and reddish-brown markings.

W. M. APPLETON, Esq., Weston-super-Mare, sent Cypripedium × Lady Roberts and Cattleya × Trianæ, Appleton's variety. Mr. H. WHATELEY, Kenilworth, showed hybrid Cypripediums. Mr. ALEX. WRIGHT, Reading, showed Cypripedium × Mrs. A. W. Sutton.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks, showed a fine plant in flower of Odontoglossum triumphans, grown in a clear glass pot for two years, its fine root development being visible and very interesting.

Mr. JAS. DOUGLAS showed varieties of Lælia anceps. Sir WILLIAM MARRIOTT (gr., Mr. Denny), sent a good spike of Dendrobium spectabile.

Awards.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Cooksoniæ (see fig. 47), from NORMAN C. COOKSON, Esq. (gr., Mr. H. J. Chapman). The finest blotched Odontoglossum yet seen, and a model flower in every respect. Flower (one of six) of a thick substance, four inches across, and each petal 1¾ inch wide. All the segments were fringed, and heavily tinged with purple at the back. The face of the flower presents a small pure white area round the column, and the margins of each segment are white tinged in places with purple, the remaining two thirds of the flower are taken up by large purplish-red blotches, the larger being surrounded by smaller blotches, but divided only from the larger ones by thin lines of the white ground colour. It is impossible to imagine an improvement on this extraordinarily beautiful Odontoglossum.

Dendrobium × *Wiganiæ xanthocheilum*, from Sir TREVOR LAWRENCE, Bart, Burford (gr., Mr. W. H. White). A remarkable and beautiful departure from the ordinary forms. Flowers bright yellow, the lip having a maroon disc.

AWARDS OF MERIT.

Odontoglossum × *loochristyense, Lord Howick*, from Captain G. L. HOLFORD (gr., Mr. Alexander).—A very pretty and distinct form, with bright yellow sepals and petals, each bearing one or two large brown blotches, the petals having a white base; lip white, with brown blotches and yellow crest.

Lælio-Cattleya × *Wellsiana magnifica* (L. purpurata × C. Trianæi), from FRANCIS WELLESLEY, Esq. (gr., Mr. Gilbert).—A very showy hybrid, with large flowers, the sepals and petals of which are delicately veined and tinged with purple; front of lip dark ruby-purple, disc tinged with yellow, and bearing fine dark lines.

Cypripedium × *Minos Young's variety* (Spicerianum × Arthurianum), from R. BRIGGS-BURY, Esq., Bank House, Accrington (gr., Mr. Wilkinson).—Dorsal sepal circular, white, with a greenish base, and showy markings of dotted purple lines. The rest of the flower is yellow, tinged with brownish-purple; a very handsome hybrid.

Odontoglossum × *Wilckeanum Rex*, from Messrs. SANDER & SONS.—Flowers cream-white, the petals blotched with red-brown in oval rings, the sepals more heavily marked with transverse bars of red-brown. Lip white, with reddish-brown spots and yellow crest. The fine plant made a handsome object, bearing sixteen flowers on the spike.

CULTURAL COMMENDATION.

To Mr. W. H. White, gr. to Sir TREVOR LAWRENCE, Bart., for a large panful of Epidendrum polybulbon, finely flowered; and a similar specimen of its variety, luteo-album.

To Mr. Alexander, gr. to Captain HOLFORD, for Lycaste × Mary Gratrix, with seven flowers.

BOTANICAL CERTIFICATE.

Bulbophyllum suavissimum, from Sir TREVOR LAWRENCE, Bart. (gr., Mr. W. H. White).—A gem of a botanical Orchid, with eighteen spikes of small, yellowish, fragrant flowers.

Fruit and Vegetable Committee.

Present: W. Marshall, Esq. (chairman); and Messrs. Geo. Nicholson, R. Dean, Jno Green, Amos Perry, J. F. McLeod, Jas. Hudson, J. Jennings, G. Reuthe, W. Howe, C. R. Fielder, Chas. Dixon, C. J. Salter, W. Bain, Chas Jeffries, Herbert J. Cutbush, R. W. Wallace, W. Cuthbertson, R. Wilson Ker, W. P. Thomson, E. H. Jenkins, W. J. James, H. Turner, and Geo. Paul.

A collection of thirty-six dishes of Apples, shown by J. B. FORTESCUE, Esq., Dropmore, Maidenhead (gr. Mr. C. Page) was rewarded by an award of a Silver Banksian Medal. There were fine specimens of King of the Pippins, Annie Elizabeth, Duchesse de Bordeaux Blenheim Orange, and Cox's Orange Pippin, &c.

Messrs. GEO. BUNYARD & Co., Royal Nurseries, Maidstone, showed a remarkable collection of 100 dishes of Apples and a few stewing Pears. The collection included the very best varieties in commerce, and nearly all of them were first-rate examples, of large size and high colour. Some of the most noteworthy were Vicar of Beighton, Wealthy, Cox's Orange, Blenheim Pippin, Beauty of Kent, an excellent Apple, possessing fine flavour at the present season, a good grower, and free cropper; King of Tomkin's County, Bow Hill, similar to large fruits of King of the Pippins, one of its parents; Warner's King, Bess Pool, Royal Jubilee, a good-looking Apple, possessing much merit; Lord Burghley, Gascoigne's Scarlet Seedling, Newton Wonder, Washington, &c. (Hogg Medal).

Messrs. SUTTON & SONS, Reading, showed examples of Sutton's Hardy Sprouting Kale, the stems being abundantly clothed throughout their length with close sprouting growths.

Annual Meeting.

The annual general meeting of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on Tuesday last. Sir TREVOR LAWRENCE, Bart., presided over a large assemblage of the Fellows.

The Secretary (Rev. W. WILKS), having read the notice convening the meeting, and the minutes of the previous annual meeting, the President announced that seventy-eight new members had been that day nominated. These were duly elected.

Mr. ALEX. DEAN next proposed a vote of thanks to the retiring members of the Council: Mr. J. T. Ben-

nett-Poë, V.M.H., Mr. Wm. Marshall, and the Rev. H. A. Berners. He bore testimony to the valuable services rendered by those gentlemen.

Mr. Geo. Paul seconded. He was sure the Society would miss the members, but he was glad that Mr. Marshall had been re-elected, and that he would resume for the fifteenth year the Chairmanship of the Floral Committee. The motion having been carried—

The Secretary announced that the following gentlemen had been duly nominated to fill the vacancies upon the Council:—The Right Hon. Lord Redesdale, The Hon. John Boscawen, Mr. William Marshall. The following had been nominated for election as Vice-Presidents:—The Right Hon. Joseph Chamberlain, M.P.: The Right Hon. The Earl of Ducie, The Right Hon. Lord Rothschild, Sir Frederick Wigan, Bart; Sir John T. D. Llewelyn, Bart. The following had been nominated for election as officers:—Sir Trevor Lawrence, Bart., V.M.H., President; J. Gurney Fowler, Esq., Treasurer; Rev. W. Wilks, M.A., Secretary; Alfred C. Harper, Esq., Auditor.

The President said that as no other nomination had been received, there was no occasion under the New Charter to issue a balloting sheet.

The Report.

The President said the next business was to move the adoption of the report. He did this with very great pleasure, because he thought there must be very few people connected with the Society who could fail to feel that the Society had not only entered on an era of prosperity, but that there appeared to be every probability that the era of prosperity would continue. Last year the number of new Fellows elected, between 1,100 and 1,200, was the largest number that had ever been elected in one year, and already this year they had, including those mentioned that day, 212 new Fellows. He thought there was reason to hope that this, the hundredth year of the existence of the Society, would show an accretion of new Fellows exceeding those of any previous year. All interested in horticulture heartily wished that this might be so. His recollection went back to his own very early days, when Chiswick was at the height of its success and prosperity. Chiswick became the resort of the fashion of the metropolis, and he had always thought, and he believed it was the experience of most people, that these institutions and societies, as well as other matters, which were taken up by people of fashion were generally let down quite as readily as they were taken up. He thought with regard to their Society they had every reason to hope that this might not be so. Since they had left South Kensington the condition of the Society had greatly improved, until they were now within measureable distance of having 7,000 members enrolled on the books of the Society. He did not think that there was another society in the least degree claiming to be a scientific society that numbered so many members; and he attributed that, not to the efforts of the Council, for that he did not do, but to the fact that the Society had acted steadily in the promotion of the art and science of horticulture, by which it had gathered round it a very large number of those who were interested in the science of horticulture. It was impossible to attend the fortnightly shows without seeing that the people who attended were not merely a fashionable crowd. Of course, they saw many smart toilettes, and they also saw remarkably nice-looking members of the gentler section of the British race. They would be very sorry not to see them; but, on the whole, it was quite evident to anyone who observed, that the majority of those who attended did so as a matter of business, on account of their great interest in the promotion of horticulture—people who wished to see how they could improve their own gardens, and add to the horticultural treasures which they already possessed. It should not be forgotten that their work formed one of the important industries of the kingdom. They not only derived great pleasure from their English gardens, but they also derived a large portion of their food from the plants and vegetables cultivated in this country. As to that point, he would allude to the show of fruit and vegetables to take place at Chiswick in the autumn, and from which he hoped forgreat results, not only as to the production of vegetables, but as to the perhaps more important branch of the question, the cooking of vegetables—an art which was rather neglected in this country.

In going through the report, it was not necessary to say very much. The second paragraph contained a reference to legal expenses. The total sum was not large—only £61. There was always a tendency in regard to a place like Chiswick to an increase in the cost. He did not say that because it was Chiswick; but there was always a tendency on the part of a garden belonging to a society like theirs to increase in cost. The cost of labour had increased, and owing to increase of membership, there was a growing increase in the cost entailed by the distribution of plants; and latterly there had been a decrease in the result of the sales of produce, owing to unsatisfactory climatic conditions.

Going on to paragraph 6, they had had during the past year the great advantage of having had a very important and successful subsidiary show—subsidiary to the great Temple Show—in the grounds of their friend, Lord Ilchester, a member of Council. He was sure they would allow him to express the thanks of the Society to Lord Ilchester for the kindness and generosity with which he had placed his grounds at their disposal. They had every reason to believe that the show at Holland House would have been a financial success, owing to the great attractiveness of the place, and it was now felt that, but for the greatly lamented illness of the King, that would have been the case. The Society made a small loss, but Lord Ilchester had been kind enough to again place his grounds at their disposal this year, and he had no doubt they would have a very successful show.

Referring to paragraph 7, he thought it was very satisfactory that the subsidiary horticultural societies had shown their attachment to the parent Society. It was evidence of the good feeling which existed between these societies and the parent Society, and it was always the pleasure of the latter to promote their interests.

With regard to Paragraph 9, it was necessary to leave the Crystal Palace, because it was felt that vegetables should be represented at the shows, but the Crystal Palace authorities had set their faces against that. He was not specially a grower of vegetables, but he took a deep interest in them, and he could not forget that at the last Chiswick show, when they had a beautiful display from Her late Majesty's gardens at Frogmore, his own gardener, in his small way, showed one hundred different varieties of vegetables and other culinary products of excellent quality. He hoped the Fellows would help the Society in this important matter. The Council did not like to unnecessarily beg from the Fellows, but any financial support they could give to the Prize Fund for fruit and vegetables would be very thankfully received.

"The Journal."

Not wishing to take up their time, he would pass to paragraph 17, which referred to one of the most important features of the Society. It was perfectly impossible, he believed, to speak too highly of the admirable way in which their Secretary conducted the *Journal* of the Society. It was a *Journal* of which any Society might be proud, and it was gratifying to know that during the last two or three years, in addition to other evidence from abroad, they had had applications from foreign Societies to exchange publications. That showed perfectly clearly to those who could read between the lines, the important place occupied by their *Journal*, and they should not forget that this was mainly, almost entirely, owing to the labours of their Secretary. Perhaps most gentleman would think he was speaking too strongly, but he would say that if the Secretary could not do a thing himself, he was always able to put his finger on the right man to do the work. Of course, the *Journal* was an expensive item. It cost now about £1,800, and it could hardly be anticipated that this cost would be reduced, but he was quite sure that no Fellow of the Society grudged the cost of the *Journal*.

Paragraph 19, as to the numerical growth of the Society, was very satisfactory; and from the next paragraph, it would be seen that already 118 country Societies had availed themselves of the opportunity to affiliate themselves with the parent Society under the scheme put forward a year or so ago. That he considered showed their unmistakable appreciation of the efforts of the parent Society to help them in various ways.

The Hall.

Coming next to paragraph 21 (relating to the new Hall), he said that up to the present, so far as he could perceive, the views of the meeting had been entirely in accordance with the opinions he had expressed, and he did not himself see why they should not be so till the close of the meeting. The position as to the new hall in regard to which important steps had been taken to realise the desires expressed at the last general meeting, was this:—They had had offered to them by their friends, as a free gift, without conditions and without control, a sum of nearly £23,000, that would help them very largely to achieve the object of the Society—the

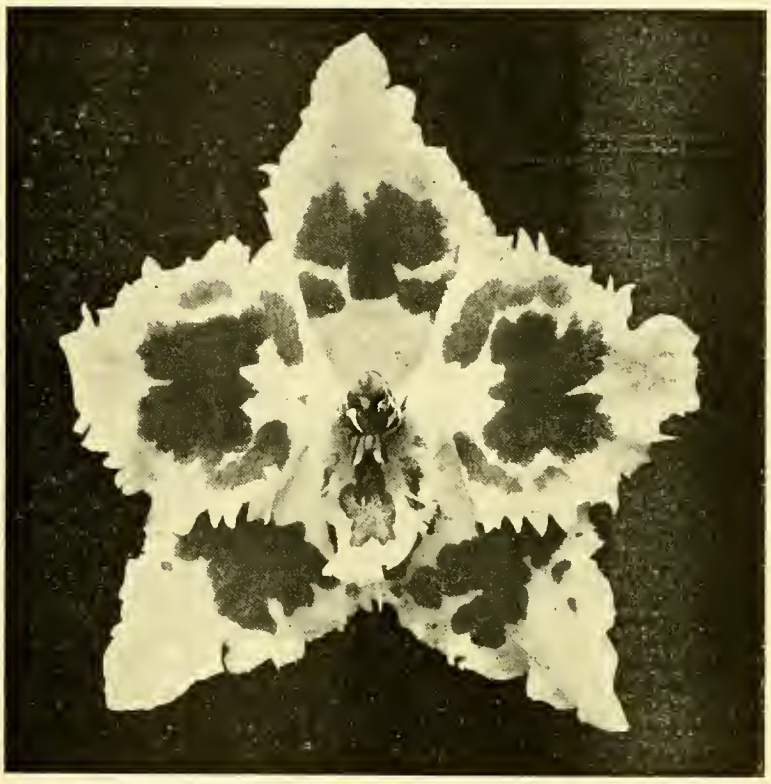

Fig. 47.—Odontoglossum crispum Cooksoniæ, awarded a first-class certificate on Tuesday last. (see p. 108.)

provision of a proper place to display the plants and flowers sent up to the Society's shows. It was quite impossible for anyone to walk through that Drill Hall, where they had got a very excellent show that day, without seeing that it was a place in no way suited for the exhibition of plants and flowers; and he confessed that he was not at all surprised when the Society, by an overwhelming majority, and with only three dissentients in a very full meeting, decided in favour of obtaining a new Hall. As to the designs, of course a great many criticisms had been received in connection with the project, and after a long experience he never anticipated anything else. He had seen the same thing in connection with other buildings. He did not suppose any building in the world had been more adversely criticised than the Houses of Parliament; and almost the same could be said of the new Foreign Office, which was built by one of the most eminent architects of the age, Sir Gilbert Scott. Then they would recollect that there was a perfect outcry against the decorations of St. Paul's Cathedral, which were designed by Sir William Richmond. Then they had seen a great deal of correspondence about the new Vauxhall bridge, which had been described as a deplorably inartistic and disgraceful affair. He was sorry to say that he was not an architectural expert at all. Of course, he liked a thing to look well, but he liked it to be convenient and useful for the purpose for which it was required. If they succeeded in getting that, he was afraid the critics must allow the Council to confess that it might possibly be ugly. He did not know, not being a judge; but he knew what he admired, and he also knew that what many people admired he did not. He had been asked to admire a magnificent building close by—he meant the Saracenic Roman Catholic Cathedral, but a more hideous and inappropriate building he never saw. In matters of architectural tastes they could not, of course, all agree. He would, therefore, hope that the Society would adhere to the decision they arrived at last year, and support the proposed Hall.

With regard to the office staff. Owing to the increase of the Fellows of the Society, and the increased correspondence and general work of the office, the Council appointed last year the Rev. Eyre Kidson as Assistant Secretary. The arrangement was that Mr. Kidson should give two or three days a week to assist in office work, but it had been found that this was not sufficient. The Council had therefore terminated the arrangement with Mr. Kidson, for whose courtesy, attention, and zeal for the welfare of the Society he was anxious on the part of the Council and the Fellows of the Society to express hearty recognition and warm thanks. The Council had decided to make a permanent addition to the staff.

THANKS TO EXHIBITORS, COMMITTEES, &c.

There was only one other matter. He desired to say that it was impossible to express too strongly the thanks they owed to the exhibitors—both amateur and professional—in all parts of the kingdom for their support. It should not be forgotten that they did not all live near London, and that they sent their productions long distances and at very considerable risk to their plants. They also owed a great debt to the scientific and practical gentlemen who wrote valuable papers for their meetings; those papers were published in the *Journal*, and supplied information which it would be difficult to get from any other source.

With regard to the gentlemen who served upon the committees, they, like the plants that the Society exhibited, came from all parts of the kingdom. They gave their valuable time and services to the Society. The Society would be nowhere without their help.

THE STAFF.

The Secretary had gathered round him an excellent staff, but he was bound to say that their Secretary did the lion's share of the work. It was impossible to exaggerate the valuable services of Mr. Wilks, and he wished to pay a tribute to the way in which the staff, when called upon, seconded their Secretary.

He was obliged for the way in which they had listened to him, and if he could answer any questions, it would give him very great pleasure to do so.

THE DISCUSSION.

Mr. ARTHUR SUTTON seconded the motion. Reference, he said, had been made to the new Hall. He would like to say that although the site was not all that could be desired, it was the best possible site the Council could find; and although the buildings might not be all they could wish for, they were planned with the object of affording the greatest possible facilities to the exhibitors, and the offices were the most commodious that could be made on the site in question. He hoped it would be believed that the Council had done their utmost to carry out the wishes of the Fellows; and that, although in the first instance the Council considered a garden more desirable for the Society, they had adopted the views of the Fellows, and had put their shoulders to the wheel, and had brought the Hall scheme practically to a completion. The work of carrying out the designs was a mere nothing. They could not have found a better architect, for he had gone into the details most thoroughly. The Council placed the utmost confidence in him, and felt sure that he would carry out the work in the best possible way. He was certain their President would answer any question with satisfaction to as large a majority that day as was the majority last year in favour of the scheme.

MR. ELWES' CRITICISMS.

Mr. H. J. ELWES regretted that he had to criticise the report, especially in respect of paragraph 21, dealing with the question of the Hall. In one section of that paragraph he believed a challenge had been thrown down to him by the statement that he "unconditionally" offered £1000 towards the new Hall. It would be remembered that, after the controversy, those present at the last meeting who favoured a hall as against a garden, were challenged as to how the money was to be found. He, rising on the spur of the moment, and without previous consideration, offered to find—whether the word was "find," or "give," he could not say—£1000; but in a subsequent letter to the President, he expressed the conditions under which he intended the offer to be made. That being so, he thought the word "unconditionally" must have been inserted in the report with an object, and if he did not rise to call attention to it, he would not be fair to himself nor anyone else. The paragraph which contained the objectionable word was as follows:—

"After considerable discussion a resolution was carried, 'that the proposed site [for a garden] is not the best means of celebrating the Centenary of the Society,' and in supporting this resolution, Mr. H. J ELWES, F.R.S., unconditionally offered £1,000 if a New Hall were substituted for a New Garden as the celebration of the Society's Centenary. Mr. A. W. SUTTON, V.M.H., and Mr. N. N. SHERWOOD, V.M.H., also offered £1,000 each, and Baron SCHRÖDER a day or two afterwards offered £5,000 if a New Hall were adopted."

He ventured to suggest that that paragraph was completely stultified by the following paragraph:—"The Council desire to assure the Fellows that the provision of a New Garden has by no means been lost sight of. The Society's lawyers are in correspondence with those of the Duke of Devonshire, and negociations for the surrender of the Chiswick lease are in progress, and they hope that these, when completed, will materially facilitate the acquisition of the New Garden." It was evident that the Council, who agreed that a hall should be substituted for a garden, were now taking steps preparatory to the acquisition of a garden, and were trying to do two things at once instead of doing one thing at a time. It did not matter two straws whether they called a garden or a Hall a celebration. The question was which did they want first, and did they need a Hall which should be built in such a way that it should meet the requirements, not of the present only, but for a long future period? He had for a long time felt doubts as to whether the Building Committee had had a free hand. But after what Mr. Sutton had said and Mr. Shea had written in *The Garden*, and after statements by Mr. Godman, he ventured to think they had not. The same thing had occurred when he was a member of the Council. Before proceeding to buy a site, the Council should have endeavoured to have acquired a possible site by other means than by the purchase of land. He did not know whether the Government had been approached on the subject; but considering the fact that the Government had made grants to the Botanic Society, and having regard to the fact that many years ago the Royal Horticultural Society had unexhausted improvements representing £30,000 confiscated by the Exhibition Commissioners without any return. Having regard also to the fact that an influential member of the Government, Mr. Chamberlain, was a Vice-President of the Society, the first step the Council should have taken was to have ascertained if it was impossible to secure favourable consideration in the circumstances in which they found themselves. If that had been found impossible, there was another course open to them. In the report of the meeting, published in the *Gardeners' Chronicle* of February 15, 1902, he read the following remarks made during a speech by Sir Trevor Lawrence:

"I daresay some of you have seen in the newspapers some paragraphs associating the name of this Society with the Royal Botanic Society. We received most courteous letter from that Society, suggesting that they should place their gardens at the disposal of this Society. Unfortunately, this Society had already made all its arrangements, not only for the present year, but I may say for practically a considerable time to come, and we were unable to meet the advances which were made to us."

Had he been present at that meeting he would have wanted to know why; because it seemed to him that the Royal Botanic Society was a kindred Society to their own. He did not say that they should amalgamate with that Society, but they might make some arrangements by which the very beautiful grounds of the Botanic Society might be used for the purposes for which the Royal Horticultural Society were building a hall; and it would enable them to get rid of the difficulties of the Temple Show, and at the same time enable them, notwithstanding the generosity of Lord Ilchester, to hold such shows as only that Society could hold. Whether the matter had been discussed with the Botanic Society he did not know; but he thought that was a way by which they might have got a great deal of what they wanted without buying this Vincent Square site.

A FELLOW: The last special general meeting settled that question.

Mr. ELWES replied that Mr. Shea had stated that the site was not brought forward before the Council.

The PRESIDENT: At a meeting held on March 21 last year, the question of the site was brought forward, and the site was practically unanimously adopted by the meeting. I confess I think that if Mr. Elwes is not out of order, he is straying very near. (A voice: "Free discussion").

Mr. ELWES said he did not know whether the meeting wished to hear him; but Mr. Sutton distinctly stated in conversation, and afterwards confirmed the statement, that the question of the site was practically decided before it came to the Building Committee or the Council.

Mr. SUTTON explained that Mr. Elwes must have misunderstood him. What he said was, that when he joined the Building Committee he found the plans prepared, but that there was full opportunity for considering them, and he was delighted to support the plans.

The PRESIDENT: It was brought before the general meeting and, practically, unanimously adopted. You cannot get behind that.

Mr. ELWES said he did not desire to throw stones at the Council, but he maintained that the thing had not been thoroughly examined. They were told that £22,000 had been promised. They were told, in the first place, that it would cost £25,000. Now it was to be £40,000, and they could not be sure that it would not cost £50,000. Did the Council consider they had a sufficient mandate for them to allow the accumulated (Reserve) fund to be dumped down for such a purpose? Did the Fellows of that Society desire their money to be spent in that way? All these were matters requiring consideration. He knew for a fact that many prominent members of that Society had declined to subscribe to the Building Fund until they were satisfied that the money would be properly safeguarded. What was the position? They had got 6,000 members; and from £20,000 to £22,000 had been subscribed by a very small number of them.

He would be delighted to see a new garden, but he would like to know whether the Council had given the slightest thought as to how the two schemes could be financed together. What would be the fate of the hall if at some future time a new Council came in and the Society got into debt? Difficulties would arise. They could not sell the garden, they could sell the hall, and the hall would go! The people who had subscribed the money would then be at the mercy of ten times the number of those who had not found the money. But supposing the hall were built, would it suit the future requirements of the Society should its numbers be quadrupled? To say as Mr. SUTTON said, that the hall was the best that could be obtained under the circumstances, was certainly damning it with faint praise. He thought if they could get nothing better they should stay their hand, and the Council should take the Fellows into their confidence.

MR. ELWES' AMENDMENT.

He would move as an amendment: "That a Committee be appointed by the subscribers to confer with the Council as to the Hall and as to the proposal to surrender Chiswick, and that no contract be entered into until their report has been presented to a general meeting of the Society."

Surgeon Major INCE seconded, and Mr. GODMAN briefly supported the amendment.

The PRESIDENT, in reply, said whatever conditions Mr. Elwes had in his mind when he promised the

£1,000, they were not expressed. As to the site, nothing was settled until it was definitely settled at the last general meeting on March 21. A great deal had been said about the Royal Botanic Society. He had had frequent conferences with members of the Botanic Society, and he found that any amalgamation would be financially impossible. The Botanic was deeply in debt. He was sorry that it should be so, but that was the case; whereas the position of the Royal Horticultural Society, notwithstanding what had been said with regard to its finances, was totally different. They had a surplus on the working last year of £2,500, and they had already an accumulated surplus of £16,500. There was another thing. He did not wish to say anything against the Botanic Society or any other Society; but the Botanic Society had taken to methods of raising money which were different to those followed by the Royal Horticultural Society. They had taken to clubs, bazaars, and dances, and things of that sort—useful and amusing, no doubt, in their way; but they were not horticulture, and the very worst thing the Royal Horticultural Society could possibly do would be to associate themselves with the Botanic. Mr. Elwes seemed to think that the Council had forgotten that there was a Government in this country. He could assure Mr. Elwes that he was quite mistaken. He (the President) had been in conference with Lord Esher, and he could assure them that he never had a greater damper spread over his views. That applied to a portion of Hyde Park, or of any other park. He had discussed the matter not only with Lord Esher, but with Col. Wheatley and Major Hussey, and the Council came to the conclusion that it was impossible to get any portion of the parks to be placed at their disposal. He could assure the meeting that that matter had been carefully and exhaustively considered. Then Mr. Elwes went on to speak of a hypothetical future. He (the President) was content with the difficulties of the present, which, no doubt, Mr. Elwes had no desire to increase. What might be the case when the Society, which now numbered 6000 members, had quadrupled, he could not undertake to say, but he supposed that Mr. Elwes did not suggest that they should now provide for a society of 24,000 members! The requirements of the Society had been carefully thought out. The whole matter had been gone into. The elevation of the building had been altered completely once, and in smaller details several times. One of the proposals was that the offices should be on the ground floor, and that the whole of the remainder should be one vast glass hall. Apart from the question as to whether the ground landlord and the London County Council would have agreed to anything of the sort, it would have been perfectly impossible, because there would have been no light from behind, and the back part of the hall would have been merely a cellarage. The Council had to provide for offices, committee rooms, library, and other requirements, and he hoped the Fellows would find that as much as possible had been made of the site. Mr. Elwes seemed to think that that condemned the scheme. Where in this great metropolis could they get a large area without paying a great sum? They had to get the best area they could with the sum which appeared to be within their reach. He considered that the amendment amounted to a vote of no confidence in the Council, and he called upon the Fellows to show, by as near an approach to unanimity as possible, that they repudiated the idea that the Council had forfeited their confidence.

Mr. ELWES asked if the Council withdrew the word "unconditionally" from the report.

The PRESIDENT: You confirmed your offer.

Mr. ELWES: In that case, why did you write to me on the subject twelve months afterwards?

The PRESIDENT: Anything I may have said in my letter did not alter your original offer. I am afraid it is a casuistical view, beyond my intelligence.

The PRESIDENT then added that the solicitors had stated that £5000 might be obtained for the surrender of the Chiswick lease, and that would make the financial position of the Society very much stronger. They would then have an accumulated surplus of close upon £22,000. As to using the whole of the accumulated funds for the construction of the new Hall, if the Council considered they would require the authority of the Fellows—and in his opinion they would require it—they would ask the Fellows for their authority. There was nothing behind that remark in his mind.

Mr. ELWES: Do the Council consider they have the right to surrender Chiswick without appealing to the members?

The PRESIDENT: If the Council considered it desirable to surrender the Chiswick lease—and they already hold the opinion that it is desirable, unless the bye-laws say they are obliged to appeal to the Fellows, I think they would consider themselves entitled to do so

Mr. ELWES: Without an appeal [to the Fellows]?

The PRESIDENT: Yes, without an appeal.

LOSS OF THE AMENDMENT.

The AMENDMENT was then put, when it was lost by an overwhelming majority, only nine voting for it.

Mr. ALEX. DEAN: Is it proposed to get rid of Chiswick before a new garden is obtained?

The PRESIDENT: The position is this. We must first resign the lease, and the arrangement is that we shall be given a year after that resignation to provide ourselves with a new garden.

Mr. GEO. PAUL: And the Council would, of course, endeavour to provide a new garden?

The PRESIDENT: Yes. A Committee is already appointed, and enquiries are already being made.

The report was then adopted.

On the motion of the Rev. G. H. Engleheart, seconded by Mr. C. T. Druery, a hearty vote of thanks was accorded to the President, and the proceedings ended.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period Feb. 1 to Feb. 7, 1903. Height above sea-level 24 feet.

1903. FEBRUARY 1 TO FEBRUARY 7.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR. At 9 A.M. Dry Bulb.	Wet Bulb.	Highest. DAY.	Lowest. NIGHT.	RAINFALL.	TEMPERATURE OF THE SOIL at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	LOWEST TEMPERATURE ON GRASS.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 1	S.W.	39·7	37·5	43·1	38·4	0·02	42·7	43·5	44·6	33·0
MON. 2	W.N.W.	35·2	32·4	42·1	28·3	...	40·1	43·2	44·7	16·2
TUES. 3	S.W.	38·8	37·6	47·5	32·0	...	38·4	42·3	44·7	22·6
WED. 4	S.W.	46·7	44·1	48·9	38·3	...	40·8	42·0	44·7	37·2
THU. 5	S.W.	46·3	44·7	47·1	44·9	...	42·2	42·5	44·5	42·0
FRI. 6	S S.W.	41·9	40·2	52·3	40·2	...	42·4	43·0	44·5	30·5
SAT. 7	S.W.	49·9	48·3	52·6	40·8	0·03	43·0	43·2	44·6	34·0
MEANS	...	42·6	40·7	47·7	37·8	Tot 0·05	41·4	42·8	44·6	30·8

Remarks.—The weather during the greater part of the week has been dull, with bright sunshine at intervals.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Feb. 7, is furnished from the Meteorological Office:—

"The *weather* during this period has differed greatly in the various parts of the kingdom. Over the western and extreme northern districts rain was very frequent; it was not, however, heavy, as a rule, until the end of the period, when falls of more than an inch, composed of rain and sleet, were very common in Scotland. Over the greater part of England the weather, although mostly cloudy, was generally dry.

"The *temperature* was above the mean, the excess ranging from 1° in the Channel Islands to 4° or 5° in most other districts. The highest of the maxima were recorded on Saturday, when they varied from 57° in Ireland, S., and 56° in several other districts, to 55° in Scotland, N. and England, S. and E. The lowest of the minima, registered during the earlier days of the week, varied from 27° in England, N.E. and E., to 32° over Ireland, and to 36° in the Channel Islands.

"The *rainfall* was much more than the mean in Scotland, N., considerably more in Scotland, W., and rather more in Scotland, E. and Ireland, N., while in England, N.W., the mean was just equalled. In all other districts there was a deficit, the fall over eastern and central England being scarcely appreciable. The total fall for the week was 4·38 inches at Fort William, 4·30 inches at Glencarron, and 3·37 inches at Laudale.

"The *bright sunshine* exceeded the normal in England, E., and was just equal to it in England, N.W., but was deficient in all other districts. The percentage of the possible amount of duration, ranged from 27 in England, E., and the Channel Islands, to 10 in Scotland, W., and to 6 in Scotland, N., and Ireland, N.

THE WEATHER IN WEST HERTS.

THE present term of unseasonably warm weather has now lasted three weeks. Two days in the past week were exceptionally warm, both during the daytime and at night. In fact the lowest temperatures on the two nights were several degrees higher than would have been seasonable in the warmest part of the day. The ground has now become very warm, the readings being 5° warmer at 2 feet deep, and as much as 9° warmer at 1 foot deep than their respective averages for the month. The rainfall has been too light to affect the passage of rainwater through the percolation gauges, indeed, no measurable quantity has come through either of them for the last five days. Four days of the week were altogether sunless, and one other nearly so. Taking the remaining two days together, the sun shone for altogether ten hours. The winds have been as a rule high, and have come exclusively from some southerly or westerly point. On the 7th, the highest mean velocity recorded in any one hour, was 16 miles, and on the following day 18 miles. The air has on the whole continued rather dry for the time of year. Crocus Imperati came first in to flower in my garden on the 6th, which is three days later than the average for the previous nine years, and a selected patch of double Snowdrops was first in blossom on the same day, or two days earlier than its average date of first flowering in the preceding sixteen years. *E. M., Berkhamsted February* 10, 1903.

MARKETS.

COVENT GARDEN, February 12.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotatioos do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctnate, not only from day to day, but often several times in one day. ED.]

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s.d. s.d.		s.d. s.d.
Acacias, per doz.	12 0 —	Genistas, p. doz.	8 0–10 0
Adiantums, doz.	4 0– 8 0	Hyacinths, p.doz.	8 0–12 0
Aralias, per doz.	4 0– 8 0	— Roman ...	8 0– 9 0
Arbor Vitæs, doz.	9 0–18 0	Lily of the Valley, per dozen ...	10 0–12 0
Aspidistras, per dozen	18 0–36 0	Lycopodiums, pr. dozen	4 0– 5 0
Aucubas, per doz.	4 0– 8 0	Marguerites, per dozen	5 0– 8 0
Azaleas, each ...	2 0– 4 0	Orange-trees, each	3 0– 7 6
Begonia Gloire de Lorraine ...	6 0–12 0	Palms, various, each	3 0–20 0
Cinerarias, p. dz.	6 0–10 0	Pelargoniums, Scarlet	5 0– 6 0
Crocus, per box...	1 0– 1 6	Primulas, p. doz.	4 0 —
Crotons, per doz.	12 0–24 0	Pteris tremula, per dozen	4 0– 8 0
Cyclamens, p. dz.	8 0–18 0	— Wimsettii, doz.	4 0– 8 0
Daffodils, per doz.	6 0– 8 0	— major, per dz.	4 0– 8 0
Dracænas, var., per dozen ...	12 0–48 0	Solanums, p. doz.	6 0– 8 0
Ericas, per dozen	8 0–18 0	Spiræas, per doz.	6 0–10 0
Euonymus, vars., per dozen ...	4 0– 6 0	Tulips, red, box	1 0– 4 0
Ferns in variety, per dozen ...	4 0–30 0	— white, p. box	1 0– 4 0
Ficus elastica, per dozen	9 0–24 0	— yellow, p. box	1 0– 4 0

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s.d. s.d.		s.d. s.d.
Anemones, per dozen bunches	1 3– 2 0	Lily of the Valley, pr. dz. bunches	6 0– 8 0
Azaleas, per doz. bunches ...	2 0– 4 0	Marguerites, yellow, doz. bnchs.	2 6– 3 0
— mollis, bunch	1 0 —	Mignonette, doz.	2 0– 3 0
Bouvardias, per dozen bunches.	6 0– 8 0	Mimosa, p. bunch	0 6– 1 0
Callas, per dozen	1 6– 3 0	Narcissus, doz. bunches... ...	1 6– 3 0
Camellias, dozen	2 0– 3 0	Orchids: Cattleya, dozen blooms...	12 0–15 0
Carnations, bunch	1 0– 3 0	— Cypripedium insigne, dozen	2 0– 3 0
Chrysanthemums, various, per doz. bunches ...	6 0–12 0	— Odontoglossums, dozen...	2 0– 4 0
Daffodils, p. doz. bunches ...	4 0– 6 0	Pelargoniums, zonal, dozen bunches... ...	3 0– 6 0
Eucharis	2 0– 3 0	— White	3 0– 6 0
Ferns, Asparagus, per bunch ...	1 0– 2 6	Roses, Mermet ...	3 0– 6 0
— French, per doz. bunches	0 4– 0 6	— various, bunch	1 0– 4 0
— Maidenhair, p. doz. bnchs.	4 0– 6 0	— white, bunch.	1 0– 2 0
Freesias, per doz. bunches ...	2 0– 3 0	Smilax, doz. trails	1 6– 2 6
Gardenias, p. box	10 0–12 0	Snowdrops, dozen bunches... ...	0 9– 2 0
Hyacinths, Roman, dozen bunches	4 0– 6 0	Stocks, doz. bnch.	2 0– 3 0
Lilac, White ...	2 0– 4 6	Tuberoses, dz. blm.	0 8– 1 0
Lilium album, per doz. blooms	1 6– 2 6	— per bunch ...	3 0 ...
— auratum, per bunch ...	4 0– 6 0	Tulips, all colours, per bunch ...	0 6– 1 6
— longifolium per bunch...	4 0– 7 0	Violets, per dozen bunches ...	1 0– 2 0
		— Parma, bunch	1 9– 3 0
		Wallflowers, per doz bunches ...	3 0– 3 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen	3 0	—
— Jerusalem, per sieve	1 0	1 6
Asparagus, sprue, bundle	0 9	—
— Paris Green	5 3	—
— English, bund.	5 0	6 0
Beans, dwarf, lb.	3 0	—
— Madeira, bkt.	2 0	3 0
Beetroots, bushel	1 0	1 3
Brussels Sprouts, per sieve	0 9	1 0
Cabbages, p. tally	1 6	2 0
Carrots, doz. bun.	1 6	2 6
— bag (washed)	2 0	2 6
Cauliflowers, doz.	1 3	2 0
— Italian, bkt.	2 6	3 0
Celeriac, per doz.	2 0	2 6
Celery, per dozen bundles	6 0	12 0
Chicory, per lb.	0 5	—
Cress, per dozen punnets	1 3	—
Cucumbers, doz.	8 0	11 0
Endive, per doz.	2 0	—
Garlic, per lb.	0 3	—
Horseradish, foreign, p. bunch	1 3	1 8
Leeks, p. dz. bun.	1 6	—
Lettuces, Cabbage, per dozen	0 10	1 0
Mint, doz. bun.	4 0	8 0
Mushrooms, house, per lb.	0 6	0 9
Onions, bag	3 0	4 6
— English, per cwt.	5 0	—
— foreign, case	6 0	7 0
— picklers, per sieve	2 6	3 0
Parsley, per doz. bunches	2 0	2 6
— sieve	0 9	1 0
Parsnips, per bag	1 6	2 0
Potatos, per ton	75 0	90 0
— New Teneriffe, per cwt.	11 0	12 0
— new, Kidney, Frnch., per lb.	0	1½ —
Rhubarb, Yorks., per doz.	0	10 1 0
Salad, small, punnets, per doz.	1 3	—
Savoys, tally	3 0	4 6
Seakale, per doz. punnets	10 0	12 0
Shallots, per doz.	0 2	—
Spinach, French, crates	4 0	—
Tomatos, Canary, deeps	4 0	5 6
Turnips, p. dozen	1 6	2 6
— bags	1 0	2 0
Watercress, per doz. bunches	0 6	—

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per sieve	2 0	3 6
— dessert, various, per bush.	4 0	6 0
— culinary, Wellingtons, various cookers, per bush.	4 0	8 0
— Californian, cases	8 0	9 0
— American, per barrel	16 0	18 0
Bananas, bunch	7 0	12 0
— loose, dozen	1 0	1 6
Chestnuts, French, per bag	4 0	—
— Italian, per bag	10 6	12 0
Cobnuts, per lb.	0 3½	0 4
Grapes, Almeria, per doz. lb.	4 0	6 0
— Alicante, lb.	1 6	2 0
— Colman, A., lb.	2 0	2 6
— — B., per lb.	1 3	1 9
— Muscats, A., lb.	4 0	6 0
— — B., per lb.	2 0	3 0
Lemons, per case	9 0	12 0
Lychees, packet	1 0	—
Oranges, case	9 0	24 0
— Bitter	7 0	8 6
— Tangierines	1 0	2 6
Pears, stew., crate	8 6	14 0
— Easter Beurré, case	21 0	—
— — half case	13 0	—
Pines, each	2 0	4 0
Walnuts, Naples, cwt.	42 0	—

POTATOS.

Various samples, 75s. to 90s. per ton; Dunbars, red soil, 105s. to 110s. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

GLASGOW, *February* 11.—The following are the averages of the prices during the past week:—Apples, American Baldwins, 12s. to 16s. per barrel; do., Canadian, 12s. to 17s. do.; do., Greenings, clear fruit, 12s. 6d. to 16s. do.; various high-class red, 14s. to 16s. do.; do. green, 16s. to 18s. do.; Oranges, Valencias, ordinary, 420's, 6s. 6d. to 7s. per box; large 420's, 9s. to 12s. do.; 714's, 8s. to 9s. do.; Lemons, 4s. to 5s. per box, and 7s. to 12s. per case; Grapes, English, 1s. 9d. to 3s. per lb.; do., Scotch, 1s. 3d. to 2s. 6d. do.; do., Almeria, 12s. to 20s. per barrel; Mushrooms, 1s. 2d. per lb.; Onions, Valencia, 4s. 9d. to 7s. per box.

LIVERPOOL, *February* 11.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Main Crop, 3s. 3d. to 3s. 9d.; Up-to-Date, 2s. 10d. to 3s. 3d.; Bruce, 3s. to 3s. 4d.; Turnips, 6d. to 8d per dozen bunches; Swedes, 1s. to 1s. 3d. per cwt.; Carrots, 2s. 3d. to 2s. 9d. do.; Onions, foreign, 2s. 9d. to 3s. 6d. per bag; Parsley, 6d. to 8d. per dozen bunches; Cucumbers, 8s. to 9s. per dozen; Cauliflowers, 2s. to 2s. 6d. per doz.; Cabbages, 6d. to 9d. do.; Celery, 6d. to 1s. 3s. do. *St. John's.*—Potatos, 10d. to 1s. per peck; Cucumbers, 6d. to 1s. each; Grapes, English, 2s. to 3s. per lb.; do., foreign, 8d. to 10d. do.; Pineapples, 3s. 6d. to 6s. each; Mushrooms, 1s. 6d. per lb. *Birkenhead:* Potatos, 10d. to 1s. per peck; do., new, 8d. per lb.; Grapes, English, 2s. 6d. to 3s. 6d. do.; do, foreign, 6d. to 8d. do.; Mushrooms, 1s. to 1s. 6d. do.; Filberts, 8d. do.

CORN.

AVERAGE PRICES of British Corn (per Imperial qr.), for the week ending Feb. 7, 1903, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1902.	1903.	Difference.
	s. d.	s. d.	s. d.
Wheat	27 2	25 6	— 1 8
Barley	26 9	23 9	— 3 0
Oats	20 3	16 11	— 3 4

TRADE NOTICE.

MR. A. LL. GWILLIM has started in business at Cambria Nursery, Eltham, Kent, as a Begonia and seed grower, after being some years with Messrs. J. Peed & Son, of West Norwood.

ANSWERS TO CORRESPONDENTS.

*** *Owing to the pressure on our space we are compelled to postpone the publication of many communications.*

ADDRESS WANTED: *H. P.* If the writer of a brief note on "The Lot of Gardeners," which appeared in our issue of December 20 last, p. 464, will forward his full name and address, we will send him a letter we have received from the Curator of the Botanic Garden, Grahamstown, South Africa.

ARUM MACULATUM: *A. S.* Pot the tubers in early autumn, or as soon as obtainable, and keep them cool, and the soil moderately moist till growth begins, when more water will be necessary.

ASH FOR MAKING WALKING-STICKS: *Ash Plant.* Seedlings are mostly employed. The seed may be sown this month in drills on good ground deeply dug, the drills being drawn at a foot apart; sowing thinly, or one or two year old seedlings may be purchased from the nurserymen, and bedded out in lines at 1 foot apart, and 6 inches in the lines. Beyond stirring the soil with a hoe and killing weeds, nothing more is needed. The site of the beds should be open and free from the shade of trees. Where large, thick sticks are wanted, it might be necessary to transplant and let them stand two or three years in the new bed. Ash is tougher when grown on cool soils and grown slowly, that is, not hurried on by the use of manurial top-dressings.

BEGONIA GLOIRE DE LORRAINE: *A. Stamford.* If you will turn to our issue for December 20, 1902, p. 451, you will find the information you desire.

BOOKS. *T. S. S.* We can recommend the following works: *Fertilizers, their Character, Composition, and Suggestions as to their Use for Different Crops*, by Prof. Voorkees, price 4s. 6d. (Macmillan & Co., London); *A Treatise on Manures*, by Dr. A. B. Griffiths, price 4s. 6d. (Whittaker & Co., Paternoster Square); and *Manures for the Garden*, by Dr. A. B. Griffiths, price 1s. 6d. (Messrs. Collingridge & Co., London). —*H. A.* There does not exist any modern work on table decorations in the English language. That of Miss Anne Hassard has been long out of print, but it may be met with at the old book shops.—*Hortus. Alpine Plants*, "A Practical Method for Growing the Rarer and More Difficult Alpine Flowers," by W. A. Clark, illustrated; published by Upcott Gill, 170, Strand, London, E.C.

CARNATION FOLIAGE DISEASED: *Mac, and T. W.* The "grass" is attacked by a fungus, Helminthosporium echinulatum, which no remedy will cure without at the same time killing the plant, as it is internal. Carefully dig out the entire plant, and burn it forthwith. Grow your Carnations on a new site.

COOL ORCHIDS: *W. North, Bow.* The subject, to do it justice, could not be treated of in this column. We would advise you to read Mr. Frederick Boyle's book, entitled *The Culture of Greenhouse Orchids*, published by Chapman & Hall, London.

DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES: *R. J.* The language employed is French. The work is published at 24, Rue Quinaux, Schaerbeek, Brussels. Business letters should be sent to M. Goossens, No. 68, Rue Walkiers, Auderghem, Brussels.

EUCHARIS BULBS: *T. W.* The bulbs sent are very slightly affected by the bulb-mite, and if a good method of cultivation be followed, and no severe drying-off is practised, the pest will probably die out, or have no injurious effects on the plant.

EVERGREEN SCREEN AND WIND-BREAK: *Wm. B. Welch.* Approximate heights, five years after planting 3 ft. high plants, in good soil:—English Yew, 6 ft.; Holly, 5 ft.; Euonymus, 7 ft.; Evergreen Oak, 5 ft.; Pinaster, 8 to 10 ft.; Monterey Cypress, 8 ft.; Lawson's Cypress, 8 ft. The more exposed the site, the slower the growth.

HORTICULTURAL HALL: *J. W. M.* Your suggestion has been forwarded to the proper quarter.

IRRITATION SET UP BY THE HAIRS ON THE LEAVES OF PRIMULA OBCONICA: *F. S.* If the irritation be left to itself it will subside. Goulard-water might be used if it be very severe.

LAND UNDER TREES: *J. J. J.* Get good old turf off heavy land, then manure and dig the ground before it is laid; make level and firm by trampling and rolling, then lay the turf neatly and beat to a level, firm surface. This may be done between the present time and the end of next month, but not when the turves are in a frozen state. If it get rather bare in a year or two, sow fine grass seeds and Clover (Trifolium minus), and afford a dressing of loam and wood-ashes.

LEASE OF MARKET GARDEN LAND: *Plums.* We think that you should get your lease drawn up anew; but before doing anything, obtain legal advice.

NAMES OF FRUITS: *J. Broodia.* Apple Cornish Mother.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*A. S.* Cattleya Trianæ delicata. The flowers are not pure white. They are imperfectly developed, and probably when better grown they will have still more colour.—*L. S. R.* 1, Gymnogramma chrysophylla; 2, Asplenium Belangeri; 3, Hæmanthus natalensis.—*V. T., N. Wales.* 1, Zephyranthes carinata; 2, Cyrtanthus McKenniæ; 3, Cyrtanthus lutescens.—*Foreman.* 1, Pleurothallis rubens; 2, Bulbophyllum auricomum; 3, Bulbophyllum saurocephalum.—*J. H.* 1, Cœlogyne graminifolia; 2, Odontoglossum Rossii, with unusually coloured petals.—*Veritas.* Cattleya Trianæi.—*J. T.* 1, Not recognised; 2, Stachys lanata.—*G. T. W.* 1, a variety of Yucca aloifolia; 2, Cestrum fasciculatum; 6, Diplacus glutinosus; for the rest, send better specimens.—*Enquirer.* 1, Anthericum lineare variegatum; 2, Coronilla glauca. —*Weekly Reader.* Eriostemon intermedius.

RICHARDIA IN A TANK OF WATER: *Hortus.* The water may top the pot by 2 to 3 inches, or even a less depth.

ROOTS OF PEACH TREES AND VINES: *A. S.* The roots of the Peach, that is, of the stock, some sort of Wilding Plum, are covered with adventitious buds, which would eventually develop into suckers. Some sorts of Plum-stocks are capable of producing many such buds, and we can suggest no remedies other than pruning off the suckers quite close to the roots when they appear above the soil. The Vine-roots showed no trace of eelworms, but they were poor specimens, and insufficient for the purpose.

SITUATION AS GARDENER IN SOUTH AFRICA: *W. B.* The proper course is to advertise in home and South African journals; or, provided you have as much money as will keep you from want for six months, to go out, and obtain an idea of the conditions of employment, and take any kind of job for a time.

SOCIETIES: *W. S.* Royal Jersey Horticultural Society, Sec., E. Salway, Dorking Avenue, Brighton Road, St. Heliers; Société Française de Londres, Mr. G. Schneider, 17, Ifield Road, West Brompton, London, S.W.

TULIPS FLOWERING BADLY: *Tulipa.* Without seeing some of the affected plants, the soil, &c., and the treatment being more fully described, we are unable to say what has arrested development. Were the bulbs well rooted before forcing began, or has the bottom-heat been so high that the roots have suffered?

COMMUNICATIONS RECEIVED.—J. C. T.—H. B.—A. B R.—Constant Reader—S. R.—H. W. W.—J. D. H.—H. J. E.—M. J.—W. W.—S. W. F.—H. J. V.—Coutts & Co.—H. H. D'O.—C. Orfleur (2)—J. W. M.—Land—U. D., Gothenburg—*Nature Studies* (Blackie & Co.)—J. S. U.—Devon—A. Y. L.—J. S. B.—H. J. & A. H.—Puzzled, Braintree—J. L.—H. J. Veitch—E. T. C—G. B.—Young Gardener—J. H.—H. H.—Seeds, Thos. H.—F. C. L., Papayan—A. H.—H. B., Stevenage—H. W. W.—J. Drydeu—A. W.—A. McL. M.—F. B., Ipswich (thanks).

The Terrace Garden, Swallowfield Park: photographed by F. Mason Good.

THE
Gardeners' Chronicle

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ILLUSTRATIONS.

Belmont Castle, Perthshire, the residence of Sir H. Campbell-Bannerman, M.P. 114, 115
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View in the Gardens of Belvoir Castle, Grantham (Supplement).

BELMONT CASTLE.

IN the vicinity of the Grampian Hills, and about a mile from Alyth Junction, on the Aberdeen and Edinburgh Caledonian Railway, stands the palatial Scottish residence of Sir Henry Campbell-Bannerman, Bart. The estate although not extensive, contains tracts of land, judging from tree growth and farm crops, as good as any to be found in the Howe of Strathmore. Belmont Castle is within a short distance of such notable places as Glamis Castle, Hallyburton House, Aurtherstone House, and several other estates including the land forming the southern boundary of Perthshire, and the northern boundary of Forfarshire. The strath on which the Castle stands is perfectly flat, and from its walls a prospect of varied scenery is obtained for miles around. The history of the Castle dates from the Reformation in the sixteenth century, when it was known as Kirkhill Castle, and when it was the seat of the bishops of Dunkeld. At the time of the Rebellion in 1745, the proprietor at the time being a follower of Prince Charles, lost the estate, which was confiscated by the Crown. The Castle was afterwards sold to Lord Privy Seal McKenzie, who had it rebuilt and enlarged in 1752 (still, however, preserving the oldest portion), the work being executed from designs by Adams', the famous architects of Edinburgh. The estate afterwards became, through marriage, the property of Lord Wharncliff. With the exception of the oldest portion, which is fireproof, the building was in 1885 burned to the ground. In this ruinous condition the Castle and estate was bought by the present proprietor, who at once commenced the erection of the handsome building, the frontage of which is shown in the illustration (fig. 48, p. 114), presenting the southern aspect. Only a small part of the original Castle now remains, and this includes the clock tower, the walls of which are 7 feet thick, and the rooms arched over with stone. The style of architecture is Scottish baronial, after Holyrood and Falkland Palaces, which are now about the only examples of this style remaining in Scotland.

As it now stands, the Castle is very different from the original, the entrance being changed from the north to the south side. The stables and outbuildings, instead of being close to the mansion, stand some two or three hundred yards distant, and they are completely shut out from view by ornamental trees and shrubs. These changes demanded a re-arrangement of the grounds, and the two approaches which, after passing through thickly-wooded portions of the demesne, enter the park on the west and south sides, but instead of striking almost a direct line through it as formerly, a regular sweep of the southern boundary is made, with the Castle continuously visible from every point.

In places of any antiquity there are usually to be found trees of great size and age, and this is the case at Belmont, as may be observed from the view (fig. 49, p. 115) taken of a walk leading from the garden to the approach, where there are growing many famous Beeches, with straight clean trunks, 50 feet in height. Throughout the policies, old stately trees of various species meet the eye at every turn, and close to one of the approaches there is a specimen Tsuga Mertensiana, the Albert Fir, about 60 feet in height, a most symmetrical plant, and thought to be one of the best in the country. There is no Pinetum, properly so-called, but Conifers form an important feature, every species and variety capable of enduring the climate having been planted during the last ten years, and all of these trees are in robust health. Nor should mention be omitted of the winter garden at the west side of the castle, which is laid out in the French style with gravel walks edged with turf and the beds with Ivy. The beds, which are varied in form, are closely planted with a unique collection of dwarf Conifers, and all the most rare shrubs adapted for the purpose.

The kitchen garden, which is in the form of a shield, is about 4 acres in extent within the walls, and is situated about 400 yards from the Castle, from which it is screened by tall Beech trees and a judicious arrangement of Conifers, beds of Rhododendron, and other ornamental foliage and flowering shrubs. A select collection of fruit trees has been planted, including most of the new varieties of Apples, which latter are on trial. Under no conditions could the test be better undertaken than under the management of Mr. Dingwall. The following is a list of varieties which succeed at Belmont, and one which should be of good service for intending planters in that part of Scotland.

Kitchen Apples.—Lord Grosvenor, Duchess of Oldenburg, Early Julien, Pott's, East Lothian, Bramley's and Ecklinville Seedlings, Bismarck, Grenadier, Golden Spire, James Welsh, Loddington, Lady Henniker, Small's Admirable, Lord Derby, Ringer, Warner's King, Atalanta, The Queen, and Northern Greening.

Dessert Varieties of Apples which bear well and ripen their fruit in the district are Early Harvest, Red Juneating, Lady Sudeley, Kerry Pippin, Worcester Pearmain, Allanbank, King of the Pippins, James Grieve, Gascoigne's Scarlet, Allan's Everlasting, Jenny Sinclair, and Fearn's Pippin. Most of the varieties named are grafted on the broad-leaved Paradise stock, and they are trained as half-standards, with open crowns. With the exception of a cankered branch here and there, the trees are in the finest condition.

The Pear is not largely grown in the bush form, but the evidence of good crops was abundant on wall trees. The cultivation of wall fruit is a specialty at Belmont, and besides the enclosing walls of the garden, which are well furnished with trees, there is an old brick wall, 200 yards long, extending across the middle of the garden, filled from end to end with trees of the Peach, Plum, Apricot, and Cherry. This wall, which is 15 feet in height, and 25 inches thick, was built in 1768, and can be warmed throughout by means of smoke-flues. The use of heated walls was common in the north before the erection of glass structures, and on them Apricots more especially were very successfully cultivated.

The principal kinds and varieties of fruits grown on the open wall are: Peaches, Waterloo, Hale's Early, Royal George, Noblesse, and Alexander; Apricots, Large Early, Moor Park, Hemskirk, and Peach; Plums, Oullin's Golden Gage, Green Gage, Prince Englebert, Denyer's Victoria, Pond's Seedling, Jefferson, Kirk's, Diamond, White and Red Magnum Bonum, and Archduke; Cherries, Early Rivers, May Duke, Black Eagle, Bigarreau Napoleon, Tartarian, Florence, Fraser's Bigarreau, and Late Duke. These are the varieties specially grown on the old wall referred to. The visitor will be struck by the fruitful condition of the trees on this wall, which make little wood, but bear fruit heavily year after year; even the Washington Plum, usually a shy bearer, carrying as heavy a crop as any other. The explanation given is, that when the border which slopes to the south was prepared, a large quantity of lime and plaster rubbish from the ruins of the castle was incorporated in the soil, which is a yellow loam on a fine red "till." The virtues of lime, even in this form, for the culture of stone fruit is not sufficiently recognised by some gardeners, who afford all kinds of fruit-trees the same kind of soil.

One of the ranges of vineries and Peach-houses is of the same age as the fruit wall referred to, and the houses will apparently stand for fifty years longer. Another range, also for fruit and stove and greenhouse plants, was erected seven years ago, and everything contained therein bears the stamp of cleanliness and high cultivation. The whole place bears evidence of liberality without ostentatious display, everything plain and substantial, while the remodelling of the grounds by Mr. Dingwall bears testimony to the fact that successful landscape gardeners, like "painters and poets," are "born not made." I must reserve a description of the hot-house department, bush fruit, and Strawberries, for a future occasion. *W. W., late of Tarvit, N.B.*

NEW OR NOTEWORTHY PLANTS.

STANHOPEA LANGLASSIANA, COGN.

IN giving the names and elevation of the localities in which the above species grows, in the *Gardeners' Chronicle* of December 14, 1901, p. 424, and also of January 18, 1902, p. 38, there have occurred several errors which, I think, ought to be corrected. Such errors often propagate themselves for generations, and grow in proportion of their age to such an extent that it becomes extremely difficult to distinguish the correct from the incorrect. Instances of this fact could be cited by hundreds.

There is no such locality as Altaquezo, which would mean a high cheese; nor is there any river

called Cuaiquer; and last, not least, Altaquer is neither situated on the small river called Rio Cuaiquer, nor on a big one of this nomination, and much less at an elevation of 1700 m. above the level of the sea.

The river in question belongs to the great and complicated hydrographic system of Rio Mira, and bears a number of different names according to the locality through which it takes its course. It is no small river, but a mountain torrent, conducting an enormous body of water into the Mira. Being formed out of two mountain torrents, the Rio Guavo, which takes its origin on the volcanic mountains El Guálcala and El Azufral, and the river Chucunés, which descends from the lofty volcano De Cumbal; it is first called Rio de San Pablo until the Quebrada Imbi joins it from the right. From here downwards it bears the name Rio de Cuaiquer for a considerable distance until its junction with the Rio de Mayasquer, and from there down to the confluence with Rio Mira, Rio Guiza.

FIG. 48.—BELMONT CASTLE, PERTHSHIRE, THE RESIDENCE OF SIR H. CAMPBELL-BANNERMAN, M.P. (SEE P. 113.)

The district is characterised by a number of similiar appellations of localities, such as Guataqner, Pipulquer, Pususquer, Guaiquer, Altaquer, Mayasquer, &c., the significance of which appears to be at present quite obscure. The altitude of the region assigned to the spontaneous growing of this Stanhopea is also quite incorrect. Besides that, Altaquer is only situated at an elevation of just about 1,000 m. above the sea, no species of Stanhopea in any part of Central or Andesian America, so far as my knowledge goes, grows spontaneously up to elevations of 1,700 m. above the sea-level, the maximum average being 1,500 m. with trifling plus or minus. In a cultivated state a few species, S. grandiflora (H. B. K.), Rchb. fil., S. connata (Kl.), S. Lehmanni (Kranzl.), and two more undescribed species, thrive tolerably well up to 1,800 m., and even higher, but in these elevations they flower very seldom. Cultural trials made here with species of Stanhopea from all regions have proved that all grow best and flower freely and constantly at an elevation of 1,000 m., to which nearer the equator corresponds an annual average temperature of 22° to 23° Cent., the extremes of maximum and minimum ranging between 16° and 30° Cent.

Stanhopea Langlassiana grows on trees and rocks in damp woods near Cuyambi, Altaquer, Guesbi, &c., in the district of the Rio de Cuaiquer, on the western declivities of the Andes of Tuquerres; and also at Naranjo, on the Rio Dagua, on the western Andes of Cali, from 400 to 1,200 m. above the sea, in the localities of which it has been observed since 1878. It is not a common species. In my herbarium it bears the No. 10,040. *F. C. Lehmann, Popayan.*

ABOUT MUSHROOMS.

A GLANCE at the market reports in the *Gardeners' Chronicle* for a number of weeks past will point to the fact that the prices for Mushrooms have been quite abnormal, averaging something like 1s. 8*d.* per lb., a figure which is much higher than is usual at this time of year. For this, many reasons have been offered, the main one being the preceding cold wet spring and early summer which destroyed all chances of an abundant wild crop in the autumn. If this opinion be the correct one, then I venture to think that growers for market have, to some extent at least, shown a want of foresight in not having been prepared for the contingency; and by laying down beds in good time, not only securing an ample supply of the favourite esculent for the public, but materially increasing the profits of their own establishments.

It has been frequently noted that when an abundant crop of wild Mushrooms is in evidence in the autumn, the preceding spring and summer have been invariably dry and warm. The lessons of Nature, however, in this respect would appear to be lost sight of to a remarkable degree by our growers for market, by whom one would suppose they would be taken to heart with avidity as absolutely infallible.

Whilst holding with the opinion that the scarcity of the wild crop has considerably influenced the ruling prices for Mushrooms during this autumn, I am far from thinking that other causes have not contributed to the high rates. Ever and anon we hear of growers, large and small, relinquishing the work on account of crop failures, and the remark expressed that "Mushroom growing is far too much of a lottery for us to continue it longer." Certainly, the cultivation of the Mushroom differs in many respects from that of almost any other horticultural product, and it appears to me that there are only a very few who can say with confidence, after they have finished spawning and casing a bed, that a good crop will follow. That Mushroom-growing can be reduced to such a certainty I verily believe, but I am equally confident that the methods to be employed for its realisation are understood only by the few. Rules may be laid down for the cultivation of most of our garden products, and successfully followed by men of absolutely no practical experience whatever, but this I do not think holds good with regard to the cultivation of the Mushroom. To be a successful grower, the man must find out for himself by long experience all the difficulties attending this branch of horticulture, and the various occult natural causes of failure and success. Except on a few points, I do not think that the reading of books devoted to the subject can help him much. They may, it is true, encourage him to make a beginning, and his first endeavour may be successful to an extraordinary degree, whilst succeeding efforts may prove disastrous, till such time as the grower has found out by dint of experience, and, it may be, heavy cost, the art of production by reducing to a minimum the chances of failure.

As I have already stated, there are some few points in Mushroom cultivation which the beginner may accept with advantage to himself from writers on the subject; but in this paper I will only allude to one, but that it is a cardinal one, and one that has been but too lightly touched upon even by our best writers on the art of Mushroom cultivation, I am equally convinced. I allude to the absolute necessity of refraining from attempting to grow Mushrooms too often on the same ground or in the same building.

It may be difficult to offer a reason for the failure of crops when the same ground or building is used for several consecutive years for attempted Mushroom production, but that the "sickening" of the positions under such circumstances takes place with disastrous consequences no one can deny. After brilliant successes, the railway tunnel at Edinburgh had to be abandoned, at least for a time, and one frequently is informed by growers of the fact that they cannot produce such crops of Mushrooms now as they used to do when they began the cultivation some years ago, the reason for which they cannot imagine, but in nine cases out of every ten is the one, in my belief, given above.

Poultry farmers were quick to perceive and act upon the fact that pure conditions of life were absolutely necessary for the profitable production of healthy birds and an abundant supply of eggs, hence the introduction of the practice of shifting the pens in a meadow at stated periods from one position to another before the "sickening" of the old one, and consequent appearance of disease. The good results of this plan are apparent everywhere. The Mushroom-grower, I fear, has been slow to follow in this line, greatly to his disadvantage; he has been too frequently content to struggle on in the vain pursuit of success on positions thoroughly contaminated by previous culture, with the inevitable results of partial or total failure.

It appears that as in the animal, so in the vegetable kingdom, all domesticated organisms should have the advantage of the purest conditions of life, and that all plants artificially cultivated should be scrupulously afforded the same conditions. My ideal method for the artificial cultivation of the Mushroom is something like the following:—Procure, if possible, a meadow clear of all the contaminating influences of a large town, and begin work on it by laying down the required number of beds for the season on one side of the field, and when another batch is wanted, use the opposite side, and so on, until the ground is worked all over.

By this means, a supply of the purest soil will be available on the spot, and by the time the land is thus worked all over, that first operated upon will be in readiness for another lot of beds. Should the following system be carried out, viz., when the first beds are exhausted, remove every particle of spent manure from the ground, then dig or trench without the addition of any kind of manure whatever, and crop with any kind of vegetable that would be likely to pay till such time as it is required again for the Mushroom-beds, when it will be rested and purified. By this system of working, I do not see why a virgin pasture should not be utilised by the Mushroom grower for an unlimited time with a minimum risk of failure. *J. Lowrie.*

ORCHID NOTES AND GLEANINGS.

CALANTHE VEITCHI.

It appears that this beautiful winter-flowering Orchid will succeed in soil of different natures, though had I good turfy loam, I should discard peat and add a small quantity of partly decayed leaf-soil, with a sprinkling of coarse river sand, pounded brickbats, or charcoal. Equally good results are achieved when potsherds are employed in lieu of brickdust. Mr. Fulford attributes his success partly to the fact of his pseudo-bulbs not being "too large;" on the contrary, I have always held, and found, that the larger the pseudo-bulbs the finer the spikes. As regards not hurrying the plants into flowering, at Bicton, the pseudo-bulbs when potted are placed in the Melon-house, where the night temperature never goes under 70° at night, and rises to 85°, and often 90° in the height of summer, and this sort of treatment, with full ventilation, meets the requirements of the plants.

Some flower-spikes sent to the editor in the Christmas week were as fine as any that we have observed. Diluted drainings from the cow-stalls, applied as soon as the pots become packed with roots, say, twice or so weekly, are of much service; and when the flower-spikes are pushing upwards, a layer of cowdung, an inch in thickness, may be laid on the soil. I have found no ill effects from using a little Peruvian guano as imported, squeezed up in the water and given to the plants once a week. The flowers retain their colour and last longer if, as soon as a score or so of flowers are open upon a spike, the plant is removed to a light dry house, having a night temperature of 60°, though no harm will accrue should it fall to 55° during severe weather. After passing out of flower expose the pseudo-bulbs to sunlight, and do not store them under other plants—as is often done. *J. Mayne, Bicton.*

SLEEPING SICKNESS AND ITS CAUSE.

A paragraph recently appeared in the daily press that a Dr. Hans Ziemann had been making investigations into the cause of "sleeping sickness," and had arrived at the conclusion that it was due to chronic intoxication with a poisonous material ingested with food, and that Manioc or Cassada is the food which fulfils these conditions. It is further said that "the author, in support of his belief, that this disease is an intoxication, and not due to a specific organism, gives it as a fact that in the blood of persons suffering from sleeping sickness there is no exciter of disease that can be cultured by the usual methods, so as to be made to develop further." In relation to this matter, as is well known, the Manioc, or Cassada, or Cassava plant (Manihot utilissima) belongs to the poisonous family, Euphorbiaceæ, and the juice owes its toxic properties to the presence of hydrocyanic acid (prussic acid). The application of heat, however, destroys the poison, so that the boiled juice becomes a thick black fluid, valued in cookery, and in the preparation of many table sauces; and the starch, after repeated washings, is finally dried on hot-plates, and becomes the tapioca of commerce, any remaining poison being completely dispelled by the heat in drying.

In connection with the Cassava plant, and as indirectly associated with Dr. Ziemann's opinion, a curious and interesting statement recently appeared in the *Agricultural News* of the West Indies, taken from the *Geographical Journal* for September last, giving an account of a journey up the Caura affluent of the Orinoco, where the Cassava-plant is much grown, from which cakes and a drink known as Yaraqué is prepared. The following account is given of its preparation:—

"Yaraqué is known under different names all over Guiana. Ordinarily, it is prepared only in sufficient quantities every three or four days to meet the requirements of the household. Banana-leaves are placed on the ground in the corner of the hut, and upon these leaves the Cassava, thoroughly damped with water, is spread in layers. On each layer a powder of sage-green colour is sprinkled. This powder is called Yaraquéro, and is prepared from the leaves of a plant of the same name (Trema micrantha). The preparation of this powder is simple. The leaves having been dried on the large slab used for baking Cassava, an operation which does not take long, are then reduced to powder by rubbing between the hands. This powder is kept in well-stoppered gourds, as there is a minute red ant which is very fond of it, and will find it out wherever it may be hidden. The mass of damp Cassava and Yaraquéro is then covered with Banana-leaves, and allowed to ferment. At the end of two or three days the mass becomes slightly sour. In this state it is either eaten or drunk mixed with water and cane-juice. If allowed to ferment for more than three days it becomes intoxicating. Large quantities of Yaraqué are consumed during the dances, which form part of almost every celebration among the Indians. On these occasions the stuff is prepared on a big scale, generally in dug-outs." *John R. Jackson, Claremont, Lympstone, Devon.*

NURSERY NOTES.

MESSRS. JAS. CARTER & CO.

In these days of cheap glass there are very few gardens devoid of a greenhouse, and for this reason the demand for decorative plants of a tender nature is almost universal. Amongst such plants the position accorded to the Chinese Primrose is an important one; it is cultivated in nearly every garden, and its many varieties meet with general appreciation. Gardeners have difficulty in selecting a plant that is more effective in a vase than a well-grown Primula, and it is as useful for the dining or sitting-room as for the conservatory or greenhouse. Though essentially decorative as a plant, the blooms of some of the varieties, when cut, last a considerable time in water, and are effectively used in cut flower arrangements. Particularly charming in this way are those of the Stellata section, and the semi-double flowers.

Fig. 49.—view in the gardens at belmont castle, perthshire. (see p. 113.)

In order to supply the large quantity of Primula seeds necessary every year, certain of the large seed firms spend an immense amount of care upon the cultivation of plants exclusively for ripening seeds, and in these collections is practised the cross-fertilisation and selection that cause the improvements and developments in the strains from year to year. A few days ago we were invited to the Forest Hill Nurseries of Messrs. Jas. Carter & Co. to see a display of upwards of one thousand plants, most of which are in full flower at the present time. Being cultivated expressly for seeding, the plants are not large specimens, but bloom in pots about 5 inches in diameter. The seeds are sown in July, and the first flowers open about the last week in January. There are numerous varieties, and these differ from each other mainly in the colour of the flowers, but occasionally in form of foliage only, or even in the colour of the leaf petioles. The most charming of all the singles is Princess May, a rich but soft pink colour, about 2 inches across each flower, which has beautifully wavy margins, and is much fimbriated. The flowers have unusual substance as well as size, the variety is more

robust in growth, and the foliage is Palm-shaped or plain. Crimson King is known in all gardens for its rich deep colour. Rose Queen is less handsome than Princess May, judged by the individual flower, but it produces a greater abundance of bloom, being more free in habit. Old Elaine is pure white, and there are now two improved strains of this, one with white petioles, and the other with dark petioles, but having larger flowers than these of the old strain; Elaine may be had with Fern-like foliage or plain. There are Holborn Magenta, H. Blue, and H. Scarlet, the flowers of the last-named being of very bright red colour, but they need to be shaded from the sun's rays, even in February; Carmine has good-sized flowers, and the colour is attractive. Venus is a type that is less popular than others; the flowers are white with splashes of red colour, and the type may be obtained with plain and Fern-like foliage. Vermilion is an effective variety of the high-colour section, but is quite distinct from the Crimson King or Holborn Scarlet. Another variety is known as Salmon, and is reddish-salmon in colour; Ruby is a richly coloured variety, with a white ring around the disc, and in the colour upon the margin are tiny white spots. The "frilling" has the appearance of ruby-coloured flakes one upon the other. Holborn Queen is a fine white variety with blush of pink colour, and the foliage is Fern-like.

The newest of the singles are Edward VII. and Holborn Coral. Edward VII. is a pure white variety, one of the parents being Bouquet, which has a foliaceous calyx, and is extra strong in growth, but failing to produce seeds, is useful only in cross-fertilisation; the flowers of the cross are large, of much substance, and heavily frilled. Holborn Coral is a very recent cross from Salmon × Hercules; in colour the flowers are pleasing coral-pink, and very attractive. In Hercules the flowers are rich carmine, and they are larger, and possess greater substance than some of the others.

The double-flowered section include Carmine Empress; Snowflake, white, with blush; Aurora, pink; Lilac Queen, scarlet; Princess of Wales, white, with rare splash of red colour, &c. The largest double flowers are of salmon colour, and the habit good.

In other houses we saw collections of Cinerarias just beginning to show the flower-buds, and a collection of herbaceous Calceolarias that Messrs. Carter generally exhibit well at the Temple Show.

A house devoted to imported Davallias, or Fern "balls," and another containing an importation of dwarfed plants from Japan, seem to indicate that a good business is being done in these fanciful specialties.

NOTES FROM ISLEWORTH.

(*Continued from p.* 101.)

Hippeastrum, hort. "*Mrs. R. S. Holford*" (shown by Capt. Holford at the Royal Horticultural Society), seems a new break in the garden section. The flowers are white selfs, greenish-white below. They are rather small, and three or four are carried to the scape. It is the only really white Hippeastrum I have ever seen, excepting solandriflorum in some of its forms.

Hippeastrum, hort. "*Cristovit.*"—The effect of re-introducing vittatum blood to our red selfs has produced most brilliant orange-scarlet forms with white star.

Hippeastrum, hort., from gardens at Port Elizabeth.—From this source I received one of the early hybrids, dating back to the early days of last century in all probability. It was an Equestre form, with a very clearly defined white star.

Urceocharis Clibrani ×; Mast.—This is new to my collection; it grows and flowers freely with Eucharis.

Hymenocallis speciosa angustifolia.—A very stiff narrow-leaved form. The flowers are quite as fine as the type, and the foliage is in much less compass—a good point in a stove plant.

Phædranassa chloracea.—The type has markedly glaucous leaves, but a variety called "obtusa" has not this peculiarity. The inflorescence is identical.

Eurycles.—The genus requires revision; some species have been founded on inconstant characters. I flowered this year some very fine forms distinct from any yet described.

Brunsvigia Cooperi and B. gigantea. — Some years ago I received an importation direct from S. Africa of about fifty (or more) bulbs of a species of Brunsvigia which I took to be B. Cooperi. I flowered about forty different bulbs, and on one occasion had a dozen out together; and I also obtained mature fruits therefrom, so that I had an opportunity, not always presented to botanists, of describing this species in a comprehensive way.

Unfortunately, so many descriptions of rare bulbs are founded upon one dried specimen or drawing in some museum. Putting on one side the errors that may originate from such work, it is obvious that the result cannot be the description of a species, but simply of an individual, which may or may not be typical. After a time, perhaps, other individual plants are presented for examination, and thus, at one time and another, the first description gets gradually expanded and altered until what was crude, restricted, and incomplete, becomes at last a good specific description. This is, at least, the process that should go on in herbariums.

I found B. Cooperi to carry from ten to twenty-eight flowers to the umbel, with an average of nineteen flowers; leaves four to six, prostrate, lingulate, deciduous, minutely granulate upon the surface, and with scabrous edges; the stamens equal in length to the perianth limb.

Bearing in mind that cultivated bulbs generally carry more flowers than when in a wild state, I was satisfied of the identity of this species with the B. Cooperi described by Mr. Baker, and figured in *Refug. Bot.* 330. The nearest allied species is B. gigantea; this has from twenty to thirty flowers to the umbel, four spreading leaves, and rather exserted stamens.

Here we have two specific names with scarcely more than varietal differences in their descriptions. A very slight expansion would include them both in one species.

Miscellaneous Notes.

Platanus acerifolia variegata (= P. a. Suttneri?).—This is the finest variegated tree introduced into our gardens since Acer Negundo, if it does not indeed surpass it in beauty. It appears to be a variegated form of the London Plane, and the variegation is most bold and beautiful.

Ipomœa rubro cœrulea.—Well worth growing in every warm house. The flowers are of an intense azure blue, becoming flushed and striped with red before they fade.

Arctotis grandis (silvery white), *aspera* (white), *and Leichtlini* (yellow).—All do well outside, and flower all the summer. Grandis is the most beautiful and the most useful for vases, but the other two are not to be despised.

Tropæolums.—It is very doubtful if T. Lobbianum and T. major can be specifically distinguished, but at least they may be considered as typical of two distinct garden sections of Tropæolums. Last year I mentioned that I had obtained crosses between climbing T. Lobbianum and dwarf major. All these turned out to be good garden climbers, carrying a great profusion of flowers, and one of them has become far the largest climbing Tropæolum I have ever seen, making many shoots 60 feet long in a few months growth (under glass).

The great value of *Azalea sinensis* (garden section) for large beds in parks and lawns, has not yet been fully appreciated. Such varieties as Anthony Koster, Gloria Mundi (a fiery golden with small flowers), and many others, are subjects of great delight in June, and possess the whole air with Honeysuckle perfume. There is a great future for this section.

Pelargoniums.—Among purples I have seen nothing to compare with "Royal Purple," a dark blazing colour with large substantial single flowers in a fine truss. This kind is also a good seed-bearer. "Achievement," said to be a cross between the Fancy and the Zonal sections, bids fair to be a useful decorative kind. It is a pinkish-red self, single flowered, and stiffly erect.

Among *Cannas* several good new forms with orange-coloured flowers were raised last year in this garden, and the older section represented by Paul Bert and Senateur Montifore have been superseded.

Among *Cinerarias*, two new colour-breaks have occurred here. "Noël," a Christmas flowering form, is a light pink self, with dark blue seed disc; and another form, in white and red is marked like the "Paragon" Dahlias.

Comparative Hardihood.

Not Hardy.—Chlidanthus Ehrenbergii (stood the winter unharmed, but failed in summer), Cypella gracilis, Gloxinia tubiflora (syn. Achimenes tubiflora), Sparaxis, garden forms; Nerines, all kinds and species tried, including those said to be hardy; Zephyranthes, all kinds except the small-growing candida; Cyrtanthus angustifolius, said to be hardy by Herbert; Hæmanthus coarctatus, &c., and Herbertia pulchella.

On May 13, 1° of air frost cut down the foliage of Sprekelias, Lachenalias, and Ornithegalum lacteum, and injured all Acers and Platanus, especially Acer reticulatum. The foliage of Habranthus advenum was uninjured.

On November 20, 5° of air frost cut down all Crinums and Cinerarias in the open, and injured Arctotis and Tulbaghia. The foliage of Brunsvigias and Pennisetum Ruppelianum was uninjured.

Hardy.—Brodiæa aurea (five years), B. Sellowiana (five years). The flower-buds will stand 23° without harm, and the foliage 20°; sparrows eat the flowers. Moræa spathacea [Dietes bicolor?] (seven years), Cypella platensis (two years).

Hardy at base of heated wall in the open.—Hæmanthus carneus, flowers early in August, and carrying seed.

Hardy at base of unheated wall in the open.—Scilla peruviana. *A. Worsley.*

(*To be continued.*)

CHINESE CONIFERS.

Picea neoveitchii,* *Mast., sp. n.*—Desirous of attaching the name of Messrs. Veitch to one of the novelties among the Conifers introduced from China, through their enterprise and encourage-

* *Picea neoveitchii, Mast., sp. n.*—"Arbor 25 ped.;" ramis glabris pallide fulvis, nitentibus; foliis 15 mill. long, linearibus arcuatis apiculatis tetragonis utrinque stomatiferis; gemmis ovoideis, squamis oblongis, coriaceis subcastaneis glabris; flor. masc. haud visis; strobilis pendulis oblongo-cylindratis parum curvatis, utrinque, ad extremos parum angustatis; squamis subcoriaceis flavo-brunneis superne transversim oblongis seu suborbicularibus, apice vix productis, integris trulliformibus; seminibus obovoideis alis membranaceis oblique obovato-oblongis dimidio brevioribus. In *China Occident.*, W. Hupeh, ad alt. 5,500 ped.; Coll. Wilson, n. 2601.

ment, by Mr. E. H. Wilson, we encountered a difficulty. That difficulty arose from the fact that although Abies Veitchii is now generally recognised, yet both in books and in gardens it is still not unfrequently called Picea Veitchii. To propose another Picea Veitchii would have been quite within our rights, but as it would in all probability be productive of much confusion, we decided to modify the name and adopt the designation at the head of this article. If it serves its purpose as a distinguishing label, that is all that is required. We apply it to a Spruce

FIG. 50.—PICEA NEOVEITCHII: CONE OF REAL SIZE; COLOUR PALE YELLOWISH-BROWN.

Fir collected by Mr. Wilson (n. 2601) in Western Hupeh. It is evidently a handsome species, with the usual rough sulcate branches, which are shining, and of a yellowish-brown or fawn colour. The leaves are about 15 mill. long, four-sided, linear, curved, with a cartilaginous point, and stomatiferous on all sides. The leaf-structure is essentially the same as in other species of Picea, but the submarginal resin canals have no strengthening cells (stereome) around them. The leaf-buds are broadly ovoid, with leathery, chestnut-brown, glabrous scales. The pendulous cones are 13 to 14 cent. long, 7 to 8 cent. lat., oblong, cylindric, slightly curved, and narrowed at both extremities. Cone-scales slightly leathery, yellowish-brown, oblong or suborbicular, entire scoop-like at the apex. Seeds 25 mill. long, including the wing, obovoid, surmounted by an obliquely, obovate-oblong, membranous wing, exceeding in length the seed itself. In the dried state the scales of the cone are widely separated, and their scoop-like appearance is then very conspicuous. When the cone is soaked in water, as was done before the photograph was taken (fig. 50), the original form of the living cone is restored.

In the shape of the cone and scales the species resembles the Himalayan Picea Morinda, but the foliage is quite different, and the same remark applies to the Japanese Picea polita. Mr. Wilson tells me that he saw but one tree, from which he gathered cones, "it was about 30 feet high, very symmetrical in shape, and was growing on the top of a well-nigh inaccessible cliff in Western Hupeh, at an altitude of about 5,500 feet." *Maxwell T. Masters.*

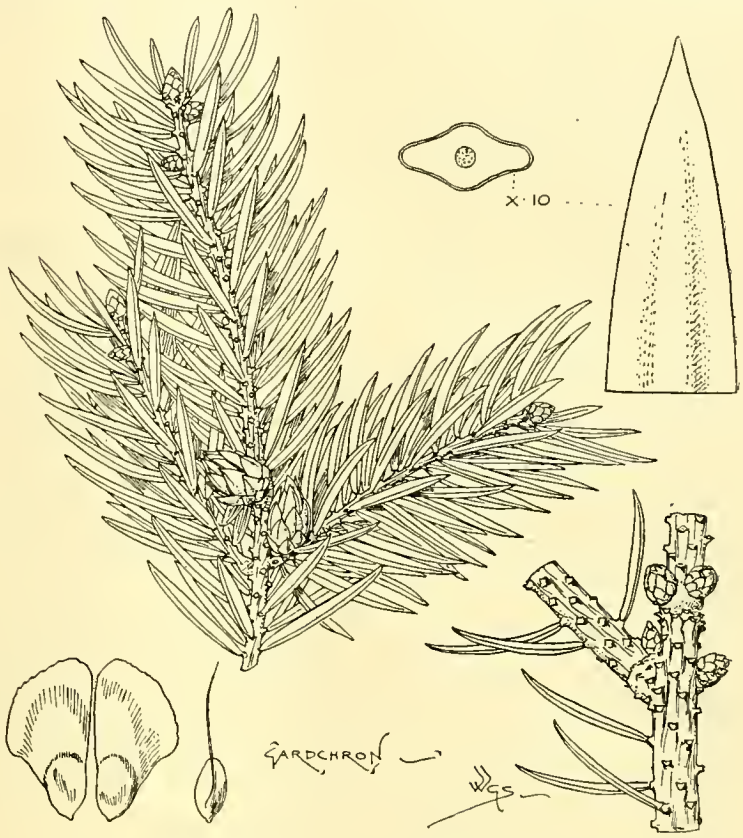

FIG. 51.—PICEA NEOVEITCHII.

A new Chinese Spruce Fir collected by Mr E. H. Wilson, n. 2601. The drawing shows a shoot with foliage, a portion of a branch with the projecting pegs; the apex of the leaf magnified; a cross section of the leaf, and the seeds.

NOTICES OF BOOKS.

FLORA SIMLENSIS: A Handbook of the Flowering Plants of Simla and its neighbourhood, by the late Colonel Sir Henry Collett, K.C.B., F.L.S.; with an introduction by W. Botting Hemsley, F.R.S., F.L.S., Keeper of the Herbarium and Library, Royal Botanic Gardens, Kew; and 200 illustrations in the text, drawn by Miss M. Smith, artist at the Herbarium, Kew. (London: W. Thacker & Co. Calcutta: Thacker & Spink. 8vo, 652 pp.)

IT has long been a matter of regret that it is so difficult, from the absence of an easy handbook, for residents in any part of the Himalaya to acquire even the most rudimentary scientific information about the numerous and interesting plants which grow around them. Royle's unequal, and on the whole unsatisfactory, folio on the *Botany of the Western Himalaya*, besides being rare and costly, affords very little help to anybody who wants to identify a wild plant which may have attracted his attention during a ramble on the hillsides near Simla. For the Eastern Himalaya, Mr. Gamble provided, twenty years ago or thereabouts, a list of the more important trees and shrubs found near Darjeeling; but Mr. Gamble's work is only a list, and from it the smaller shrubs and all herbaceous plants are excluded. The publication of the late Sir Henry Collett's *Flora Simlensis* removes this disability from the country around the summer capital of India. And henceforth no intelligent resident in, or visitor to Simla can plead, in extenuation of his ignorance of the plants of its neighbourhood, the want of a plain and simple book from which a knowledge of them can easily be obtained. Colonel Collett was quartered at Simla for four years, during which he devoted himself, with characteristic enthusiasm, to collecting the plants of the surrounding country. The area over which he worked (and of which a map is given in this book) measures about 55 miles from east to west, and about 35 miles from north to south. It includes a country varying in elevation from 2,000 to 10,000 feet, and may be taken as thoroughly characteristic of much larger areas of the Himalaya, extending both eastwards and westwards. Collett's identifications were made as he worked by means of Hooker's *Flora of British India*. Not having had any training in systematic botany in early life, he found himself rather overwhelmed by the extent of that monumental and admirable work, dealing as it does with the flora of the whole Indian Empire, from the Himalaya to Singapore. But Collett was the last man in the world to be discouraged by a difficulty; and the results he arrived at in the matter of naming his collections, proved that he had the instinct of a true botanist. Knowing, however, full well from his long experience of Anglo-Indian society, that the desire for informa-

tion about natural objects in general burns in the breasts of the majority of its members with but a feeble and flickering flame, he determined to put into the hands of its next generation a book, the scope of which is best described in the opening sentence of his preface to the present volume.

"It has been my endeavour," writes the author, "to produce a book which shall supply to residents at Simla interested in botany, and acquainted with the rudiments of that science, the means of identifying the trees, shrubs, and herbs they see in their walks about the station roads and along paths, in the neighbouring valleys, or on excursions" beyond these limits. This endeavour has been carried out most admirably, and the result is a local flora of quite an unique type. About 1,300 species are described in it, and 200 of these are illustrated by figures prepared from drawings made by Miss M. Smith, of the Kew Herbarium. These drawings are interspersed in the text; they resemble those given in Bentham's *British Flora*, and are remarkable alike for their artistic spirit and their botanical accuracy. They cannot fail to afford great help to novices in the use of a *Flora*. The descriptions, both generic and specific, are terse and graphic; and excellent keys are provided for all the Natural Families, and for every genus which contains more than a single species. An interesting feature in the book is the etymological account which is given of every generic name.

The text is preceded by an introduction written by Mr. Hemsley, in which are given a brief but excellent account of the phyto-topography of the area treated of, an analysis of the constituents of its flora, together with an outline of the botanical classification followed in the book (that of Bentham and Hooker), and a full glossary of terms. The preface is from Collett's own pen, and it is immediately followed by a graceful "In Memoriam" notice written by Sir William Thiselton-Dyer, in which is embodied a letter from Lord Roberts, giving a brief account of Collett's career as a soldier.

At the conclusion of his service at Simla, where the collections which form the basis of his book were made, Colonel Collett commanded a brigade in the Burmese war, which culminated in the deposition of King Thebaw and the annexation of Upper Burma. During that campaign he collected vigorously, and brought back with him specimens of about 700 species, many of which were new to science. An account of these, prepared in collaboration with Mr. Hemsley, keeper of the Kew Herbarium, was published in the *Journal of the Linnean Society*. Collett subsequently commanded brigades on two widely different frontiers of India, namely, the North-Eastern, with headquarters in the Khasia Hills, in the midst of the richest botanical regions in India; and the North-Western, with headquarters at Peshawar, in the midst of a comparatively poor flora. His experience as a field botanist was therefore wide and varied. His high sense of duty induced Collett, on account of his deafness, to retire from active service at the very time when his friends considered a higher command than he had ever held seemed to be within his grasp. After his retirement, Collett settled in London, and he devoted the remaining years of his all-too-short life to the elaboration of this *Flora of Simla*. The collections on which he chiefly worked where those which he had brought from India; for these he was free to dissect as he pleased. But he also freely consulted the fine suites of Himalayan plants in the Kew Herbarium, and it was in that herbarium that his Flora was prepared. For years his slender, active figure was almost daily to be seen hovering about the cabinets, while his bright, cheery manner endeared him to al the workers under the same roof. Collett had practically finished the manuscript of his Flora, and he had seen one or two of the earlier sheets of it in proof when he had a slight paralytic stroke, which proved to be the first signal of the breaking down of his powers. During the succeeding portion of his life, Collett was more or less of an invalid, and the task of editing his Flora and of passing it through the press was put into the very competent hands of Mr. Hemsley, by whom it was published about a year after the author's decease.

Collett's death was a loss to the science of systematic botany in England, which in its present depressed condition could ill spare so keen a follower. It was an irreparable loss to those who had the privilege of his friendship, or even of his acquaintance, for in him were united in singularly happy proportions the chivalry of a soldier of the old school, the mental alertness of a man of science of the present day, the shrewdness of a man of affairs, and the sweetness, courtesy, and grace of a true English gentleman—

"His bones are dust,
His good sword rust,
His soul is with the saints, we trust."

G. King.

The Week's Work.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Lawns.—Daisies and other weeds will need every effort at this season to extirpate them, the work being carried on till mowing begins. The best method of doing this is to use the hand-weeding fork, which takes out the root, and leaves very few traces that the first shower or week of mild weather does not efface. The work should be done systematically, taking a narrow strip and marking it off with a line, and so on, over the entire surface; and the roller should be used after every heavy shower.

Ground-work. — This should be expedited, especially where heavy operations are involved. If turfing has to be done on land that has been manured, it will be advisable to remove some of the soil and replace it with other that more nearly approaches the staplo which underlies the lawn. Where it is advisable to make a grass-edged walk narrower, let the turf be raised and drawn forward into the new position, and fill in the gap so made behind the strip with new turf.

Conifers.—Conifers are mostly gross feeders, and never look so happy as when a mild form of manure is applied annually. The present is a suitable season for affording a mulch of decayed manure, in bad cases removing a thin layer of the soil, and replacing it with richer material. Where this is done, it has great influence on the new growth.

Hydrangea paniculata.—A group of this fine hardy shrub has a bold effect on turf, especially if there is a background of evergreens. In order to obtain good heads of bloom, the plants should be pruned severely down to buds near their base, and the resultant shoots reduced in number to not more than half a dozen per plant, as the fewer the shoots the larger the flower-heads.

Bulb Garden.—Stir the soil in beds of Tulips, Hyacinths, and the like, while there is yet room to work an implement among them. If for tidiness sake a mulching of cocoanut-fibre is considered necessary, it should be applied after the soil is stirred. Cutting winds injure the leaves of Tulips, &c., and if shelter can be applied it will be an advantage.

Begonias.—Tubers lifted in the autumn should now be placed in boxes on a small quantity of soil, and be half covered with the same, which should contain a large proportion of leaf-mould. Start under cool treatment, and grow them cool all the time they are under glass. The stock of plants may be increased by dividing tubers which show numerous buds. The cut surfaces of these divisions should be sprinkled with quicklime or flowers-of-sulphur, and be allowed to get dry before boxing them. Seedlings may be pricked off into boxes, and grown on in warmth. It is not advisable to single out these seedlings at this stage, as this will be better done at the next shift. For the present prick them off in small colonies.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Cauliflowers.—Autumn-raised plants should be afforded air freely, and not be allowed to suffer lack of water at the root, or buttoning will follow. If they are crowded, lift every other plant with a trowel, and plant them under handlights or in cold frames at 6 or 8 inches apart; afford water to settle the soil, and keep close for a few days. Plants not large enough to be handled easily should be pricked out into pans or boxes, and placed in a frame made up for the purpose, with a not too rich, light soil. Ventilate abundantly on every fine day, and cover the lights with mats when frost threatens. A successional sowing may now be made, choosing such varieties as First Crop, Early Forcing, or Defiance. In order to secure later crops, small sowings should be made of Magnum Bonum, Walcheren, and Autumn Giant, and of the Self-protecting Broccoli.

The Parsnip.—A sowing of Parsnip-seeds may be made on soil that is light and dry, which was trenched in the autumn. The land should be levelled, and the surface made of as fine a tilth as possible. If the seed be new, sow thinly in drills 1½ inch in depth drawn 18 inches apart, covering lightly, and finishing off neatly with a wooden rake. In the north, and in cold districts and heavy soils, sowing may generally be deferred till the beginning of next month.

Shallots.—Plant forthwith on manured, trenched land, top-dressing it with road-grit and wood-ashes; setting the bulbs in shallow drills drawn at 1 foot apart, and 9 inches apart in the drills. Press the bulbs down with the finger-and-thumb sufficiently deep to keep them in position, and cover to the extent of three-quarters of their depth.

Garlic may be similarly planted, just covering the bulbs.

Seakale.—If this vegetable be grown at home for affording roots for early forcing, the "thongs" which have been reserved to serve as sets should now be cut into 6-inch lengths, the upper end being cut level, and the lower end slanting; then tie them in bundles of twenty, and stand them upright in some fine soil, the tops just being covered, and place in a garden-frame, where they will soon form buds. They may then be planted when a callus has formed at the root-end. Continue to place crowns in the Mushroom-house or other warm, dark place.

Capsicums and Chillies.—Sow seeds for raising plants for early fruiting, and place the pans or seed-pots in a hotbed, potting off the seedlings singly when they have got large enough to be handled; and later bring them into 6 or 7-inch pots. Keep them stocky by placing them within a short distance of the glass in a pit or forcing-house having a warmth of 60° to 70°.

Mint and Tarragon.—These roots should be lifted in the required quantity, and placed, the former in boxes, and the latter in pots, using a light, finely sifted soil for covering the roots. Apply water to settle the soil, and introduce them in batches to gentle warmth. See that the roots do not lack water, or growth will be stunted; and afford air, in order to keep the growth stocky.

Celery.—If Celery be required early in the autumn, sow seed of White Gem or some other early variety in pans, in light porous soil, sowing thinly if the seed is new, and place on mild bottom heat in a frame having a top-heat of 60°. Celery should never suffer lack of water at the root, or it will soon run to seed; and of these early sowings it may be said that the plants should never be checked in their growth.

Parsley.—Sow the seed thinly in boxes under glass in a gentle warmth. Gradually harden off the seedlings, and plant out in deep, rich soil in April, at one foot apart. Seed sown in the open at this date germinates slowly, and will not give such good return as that sown under glass.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

American Blight.—Apple-trees affected with this troublesome pest should have a lather of Gishurst Compound-soap rubbed into all chinks of the bark, &c., with a stiff painter's brush, or in lieu thereof petroleum emulsion may be employed. All dead bark should be removed from the affected spurs and branches before applying the remedy.

Protecting the blossoms of Apricots.—The Apricot is beginning to expand its blossoms in the south, consequently protective measures should be forthwith taken to ward off frost, showers of hail and snow; and for this purpose a double thickness of fishing-net is excellent, as it obstructs the light but very little. Stout poles of Larch or Spruce-Fir should be driven into the border at a distance of 4 feet from the base of the wall, and their tops pushed up tightly under the coping; the fishing-nets can then be tied to the top and bottom of each pole, which should be placed at 5 feet apart. In the event of severe frost appearing imminent, tiffany should be placed over the nets, and made secure.

The Blackberry, &c.—This fruit should be grown on strained wire fences, or on wooden palings facing south. The method of cultivation is that pursued with the Raspberry, the wood that fruited last summer being removed in the autumn, or at the present season; the shoots cut back to a well ripened part, and then be fastened to a wire-fence or to stakes. The soil about the stools should be lightly pointed over, and a mulch of short manure applied.

Rubus laciniatus, &c.—The Parsley-leaved Blackberry is an excellent hardy species. Wilson Junior bears fine fruit of a pleasant flavour; R. phœnicolasius, the Japanese Wineberry, is very good eating as a preserve, and the foliage and stems are ornamental.

The Fruit-Room.—The remainder of the Apple-crop should be examined once a week, and any fruit showing the least sign of decay removed. Of the culinary varieties, Wellingtons, Norfolk Beaufin, and Gloria Mundi are keeping well this year; and that fine old Apple, Sturmer Pippin, is now at its best.

FRUITS UNDER GLASS.

By T. H. C.

Pine-apples.—This is a good time to put into their fruiting-pots the plants that are well rooted, choosing for Queen Pines pots of 10 inches in diameter, and for Smooth Cayenne and other robust-growing Pines, pots of 11 and 12 inches. Do not pot any Pine plant unless the soil is in a dry state, as then, for a few days after the potting, a syringing twice daily will afford all the moisture necessary. The potting soil should consist of light turfy loam, torn to pieces by hand; to each wheel-barrowful of which a 7-inch potful of bone-meal and rather more of charcoal-nuts may be added. If the loam is retentive, add as much mortar-rubble as will make it porous. All soils used in potting should be made warm. Use a rammer in potting; but do not injure the leaves. Afford the plants bottom-heat of 85° and top-heat of 60° to 65°. Keep close for a week, and syringe twice a day, damping the walls and the surface of the bed. Plants that exhibit signs of fruiting by an enlargement of the central rosette, should be afforded warm liquid-manure or other fertiliser whenever moisture at the root is needed. If there are plants which, although growing strongly, show no signs of fruit, let water be withheld till they do show them. The bottom-heat need not exceed 85°, nor the top-heat 65° by night, and 10° higher by day, affording air when the weather permits.

The Early Peach and Nectarine-house.—The fruits are swelling rapidly, and may in cases where the general state of the plants seems to call for it be afforded mild liquid-manure, if not any has been applied since the trees were started. No certain rule can be laid down as to when water may be applied to fruit-tree borders, so much depending upon the character and depth of the situation. Shallow borders, or those consisting of porous light loam, need a small quantity at a time and frequently, whereas retentive soils do not need so much water, nor such frequent applications. In any case, water should be applied before the soil gets really dry, and then in sufficient quantity to thoroughly moisten the entire mass of soil, and no more, and not as is sometimes done, to wash much of the goodness out of it by excessive applications. Disbudding and thinning the fruit will now be partially carried out, the best placed being left on the upper sides of the branches, and small or deformed fruits removed. If time permit, when the shoots are about 4 inches in length, tie them in at the base to the bearing wood, which will facilitate the final tying in, and is a point to be observed in the proper training of Peach trees. Pinch the points out of very strong shoots, or cut them back to basal laterals. A night temperature of 55° to 60° may now be maintained, and one of 10° higher during the day; ventilating freely when the weather permits, starting early in the day with a small amount, gradually increasing it, closing the house in the afternoon or earlier in the day, and syringing the foliage and damping down. Ply the syringe in the early morning, and in other ways keep the air of the house moist.

Succession Houses.—Attend to the disbudding, fertilising of the flowers, and to other details as advised for the early house. Houses containing trees from which fruit is looked for in the months of July and August should now be closed. The buds of trees in succession houses are in a forward condition, and if the fruit is not wanted till late in the season, let as much air as possible be afforded night and day, closing the ventilators only in the event of frosty weather occurring.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury.

Shading.—Shading will soon be wanted on the roofs of the various houses, especially in the south. The various sorts of shading employed should be put into proper working order. Those houses which should be the first to be furnished with shading are such as contain Cypripediums, Phalænopsis, Odontoglossums, Masdevallias, Miltonias, and others having leaves of a soft texture. At Westonbirt the blinds are of tiffany, a special white kind being used on many of the houses, and another of a lighter texture on houses containing Dendrobium Phalænopsis Schroderiana, Vanda teres, Thunias, Lælia anceps, and for other plants which are not injured by slightly modified sunshine. These are fixed on runners placed 9 ins. from the glass, so that a free passage of air passes between the blinds and the glass. Doubled blinds should be used on houses in which shade-loving plants are cultivated, especially if the aspect is southerly; these should be fitted so as to be worked separately, using the double shade only when the days are very bright and the sun's rays scorching.

Lælia anceps.—Mexican Lælias that have short pseudo-bulbs have ceased to flower, and should now be transferred to the intermediate-house to be rested in full sunshine, with sufficient water applied at the roots as will keep the pseudo-bulbs plump, and the roots in a healthy state. Lælias of this section usually produce a cluster of roots from the last-made pseudo-bulbs soon after flowering, and the white varieties do this much earlier as a rule than the coloured ones; and when this cluster of roots is remarked, repotting or surfacing may receive attention, but on no account should the plants be repotted unless the compost has deteriorated greatly. When repotting must be performed, let the whole of the compost be shaken from the plants, and the dead roots removed, as well as the pseudo-bulbs that are no longer of any use to the plant, and repot in well-drained, shallow pans or baskets. A suitable compost for Lælias consists of equal parts of turfy peat and rough loam, a small quantity of chopped-up sphagnum, and a heavy sprinkling of small crocks and silver-sand. The surface may be finished off with clean, chopped sphagnum and peat-fibre, mixed together. Plants that have been repotted may be placed on a stage for a time, sprayed overhead daily till such time as new roots penetrate the compost, afterwards suspending them in a lighter position, and affording water sparingly. A sodden condition of the potting materials must not occur, or the new roots will decay as soon as they enter the compost.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Cannas.—A stock may soon be worked up, as every bud with a few roots attached will quickly make a plant if given a bottom heat of 60°, and a temperature of about the same degree. The soil should be rich and porous, containing a good proportion of well rotted dung. Cannas are easily raised from seeds, which should be sown now in a bottom heat of 70° to 80°, soaking the seeds in warm water for a day or so previously.

Coleus.—Take an early batch of cuttings and insert them singly in small pots containing sandy soil, and place in the propagating box as advised recently for Crotons. Avoid too much moisture, and leave on a very little air during the night.

Gloriosa superba.—The tubers of this interesting stove climber should now be shaken out of the old soil, and be repotted in 10 or 12-inch pots, which should be three-parts filled with peat and loam in equal quantities, and a fair amount of sand; put three tubers into each pot, and as the plants require much water when making quick growth and flowering, let the drainage be made perfect. The tubers start away much better if a little bottom-heat be afforded, but no water should be applied until growth appears above the soil.

Caladiums.—A part of the stock may now be introduced into a warmer structure. Shake them out, and repot as soon as it can be seen the roots are active, examining each tuber, and if decay has set in, scrape the affected parts with a knife and rub it with powdered lime. Loam, half-decayed leaf-soil, with a little peat, and fresh horse-droppings passed through a ¼-inch sieve, silver-sand, and a small quantity of charcoal, make an excellent compost for Caladiums. Plunge the pots in bottom-heat, and afford but little water until growth is active, giving them the full benefit of the sun for some weeks yet.

Sowing Seeds.—The following should now be sown in heat, treating the tuberous Begonias, hybrid Gesneras, and Streptocarpus as advised for Gloxinias in a previous calendar; Richardia Elliottiana, Grevillea robusta, and a pinch of Torenia Fournieri and T. Bailloni for early flowering.

Hanging Baskets.—Asparagus Sprengeri and A. deflexus are plants that look well in baskets, and when growing thus some attention should now be given the plants. If a basket has to be replanted, line it with moss and fill it round the plant with lumpy loam and peat. Davallia bullata, and other Davallias, are excellent Ferns for baskets.

Bouvardias.—The shoots may be pruned to prominent buds and placed near the glass in a house having a temperature of about 60°, syringing them once or twice daily, but affording no water at the roots for a few weeks. When the plants break, shake off the spent soil, remove a few of the stronger roots from the more robust plants, and place the pieces in sandy soil in mild bottom-heat to form roots, and soon afterwards nice little plants will grow, which must be potted off. Another way is to shorten the shoots less, and afford a moist heat of 65°, when plenty of cuttings will be forthcoming, but I prefer root cuttings, as they are sooner out of hand, and usually make more bushy plants, by reason of their throwing up strong suckers from the roots. Aged plants should be placed in smaller pots in equal parts of loam and leaf-soil, with plenty of sand, put in the same position as first mentioned, and be often syringed, but not afforded much moisture at the root.

General Remarks.—Eranthemum pulchellum, Plumbago rosea, Begonia Gloire de Lorraine, Centropogon Lucyanus, Coleus thyrsoideus, Justicias, and Reinwardtias that are past their best, may be cut back to within a few inches of the last stopping, and be placed near the glass in a temperature of 60°, when later on nice, sturdy cuttings will be forthcoming. Libonias, Coronilla glauca, and Solanum capsicastrum require to be rooted early. Place them in a bell-glass or hand-light in the same temperature.

EDITORIAL NOTICES.

ADVERTISEMENTS *should be sent to the Publisher.*

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, FEB. 23—Surveyors' Institute meeting.

TUESDAY, FEB. 24—Royal Horticultural Society's Committee's Meeting.

WEDNESDAY, FEB. 25—Royal Botanic Society meet.

THURSDAY, FEB. 26—Irish Gardeners' Assoc. meet.

SALES FOR THE WEEK.

MONDAY and FRIDAY NEXT—
Herbaceous Plants, Perennials, Liliums, Rose and Fruit Trees. &c. at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.

MONDAY, FEBRUARY 23—
Large quantities of Dwarf Roses, Conifers, Ornamental Flowering Shrubs, &c., by Messrs. Johnson, Dymond & Son, at their City Auction Rooms, 38 and 39, Gracechurch Street, E.C., at 12.

WEDNESDAY, FEBRUARY 25—
Azaleas, Rhododendrons, Palms, Rose Trees, Liliums, &c., at 67 and 68 Cheapside, E.C., by Protheroe & Morris, at 12.—Orchids, Lilies, Roses, Gladiolus, &c., at Stevens' Rooms, at 12 30.

THURSDAY, FEBRUARY 26—
Nursery Stock, Greenhouse, Horses, &c., at the Nursery, Grove Park, Lee, S.E., by order of Mr. G. Hind, by Protheroe & Morris, at 12.

FRIDAY, FEBRUARY 27—
Orchids in variety, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —40·1°.

ACTUAL TEMPERATURES:—
LONDON.—*February* 18 (6 P.M.): Max. 50°; Min. 35°.
February 19 (Noon): fine, cool; 52°.
PROVINCES.—*February* 18 (6 P.M.): Max. 50°, W. Ireland; Min. 40°, E. England.

Sale of Poisons.

WE learn from the *Times* that the Departmental Committee appointed by the Lord President of the Council to consider the question as to the sale of poisons, has issued its Report. We have not ourselves, at the time of writing, seen the report, but we understand that the Committee express the opinion that poisonous preparations used in agriculture and horticulture, or for sanitary purposes, should be sold only by licensed persons, and subject to regulations to be made by the Privy Council.

The Pharmaceutical Society, under existing regulations, is compelled by the terms of the Pharmacy Act to proceed against unauthorised vendors of certain poisonous compounds, such as sheep-dip and weed-killers; and these regulations, which are objected to by other dealers as establishing a monopoly, are also considered by the Committee as unduly onerous.

Certain regulations in Parts I. and II. of Schedule A are suggested, of which the most important relates to the regulation of the traffic in arsenic and its preparations. The Committee also suggests a third sub-division under the schedule, in which are placed preparations of (1) arsenic, (2) tobacco, or the alkaloids of tobacco, and (3) carbolic acid, or its homologues, exclusively for use in connection with agriculture or horticulture, or in the case of carbolic acid for sanitation as well. Mr. A. CROSS, in an interesting supplementary report, advocates allowing greater latitude in the sale of poisonous substances for manufacturing uses, which is developing continually.

That some such regulations are required in the public interest, can hardly be doubted. Whilst no druggist can legally sell certain poisons or compounds containing poison for medicinal purposes in small quantities without complying with various formalities intended for the protection of the public, it was a common practice, till lately, for corn-dealers, ironmongers, seedsmen, and others, to sell similar articles intended for manufacturing or agricultural purposes, without any such formalities. We have ourselves purchased weed-killers and fumigating materials containing enough poison to prove fatal to large numbers of people without any restriction or enquiry whatever, and in some cases without any indication on the package as to the dangerous nature of the contents. The question whether the sale of such substances should be monopolised by one set of licensed dealers is altogether secondary to the principal issue, and is one which need not be discussed here. The main point is to secure that all reasonable precautions should be taken in the sale of such deadly substances by whomsoever distributed.

Against deliberate wickedness or dense stupidity, no regulations can wholly avail, but, at least, they can be so contrived as to prevent any facilities being offered for carrying out nefarious practices, and to place obstacles in the way of preventable accidents.

ROYAL HORTICULTURAL SOCIETY. — The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will be held on Tuesday, February 24, in the Drill Hall, Buckingham Gate, Westminster, 1 to 4 P.M. A lecture "On the use of Ether and Chloroform in the Forcing of Shrubs" will be given by M. EMILE LEMOINE.—At a general meeting of the Society, held on Tuesday, February 10, eighty-two new Fellows were elected, amongst them being the Duke of Leeds, Viscountess Morpeth, Sir William Vincent, Bart., Sir Gilbert Greenall, Bart., Sir Harold Pelly, Bart., Lady Brownlow, Lady Evelyn Cotterell, and Lady Evelyn James, making a total of 220 elected since the beginning of the present year.

—— EXAMINATION IN HORTICULTURE.—The Society's annual examination in the principles and practice of horticulture will be held on Wednesday, April 22, 1903. Full particulars may be obtained by sending a stamped and directed envelope to the Society's offices, 117, Queen Victoria Street, London, S.W. The questions set at all the previous examinations are now published, price 1s., complete.

—— FRUIT AND VEGETABLE SHOW, CHISWICK, SEPT. 29, 30; OCT. 1, 1903.—A desire has been expressed in several quarters that some idea of the vegetable schedule should be put forth at once. We are accordingly authorised to say that it will include classes for (*a*) single dishes of all sorts of vegetables; (*b*) collection of vegetables (trade only) 100 square feet; do. (amateurs), 50 square feet; do. (amateurs), 24 square feet; collection of Pumpkins and Gourds (open), 50 square feet; collection of 18 vars. of Potatos (trade); do., 12 vars do. (amateurs). (*c*) 3 dishes of Peas, distinct (amateurs); 6 dishes of Round Potatos (amateurs); 6 do. Kidney Potatos (amateurs); 3 do., Kidney Potatos (amateurs); 3 do. Round Potatos (amateurs); 4 dishes of Tomatos, distinct (amateurs); 2 do., Tomatos, do.; 9 vars. salad plants in basket (amateurs)

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the Lecture Hall of the Institution, on Monday, February 23, 1903, when a paper will be read by Mr. HENRY LOVEGROVE (Fellow), entitled "Regulations for Protection from Fire." The chair will be taken at 8 o'clock.

HORTICULTURAL CLUB.—The flowers which decorated the tables on the occasion of the annual dinner on Tuesday, February 10, were chiefly sent by Messrs. J. VEITCH & SONS, of Chelsea, who also kindly arranged them. Messrs. SANDER & SONS sent a boxful of choice Orchids for the same purpose.

—— It is desired that applications for membership be received at least ten days before each Committee meeting, which is held on the second Tuesday in the month (the day of the fortnightly display of the Royal Horticultural Society). Application for membership must be made to the Secretary, Hotel Windsor, Victoria Street, London.

MRS. FREDERICK AMES.—The death of this lady is announced as having occurred at Boston, U.S.A., on January 20. Her establishment at North Easton, Mass., is one of the finest in the States, and specially remarkable for its collection of Orchids.

MR. A. D. WEBSTER.—This gentleman has been appointed Superintendent of Regent's Park and Primrose Hill. We hardly know whether he is to be congratulated or not on leaving so interesting a place as Greenwich Park, of which he has lately given us a history; but, at least, we can wish him every success in his new position.

THE HORTICULTURAL HALL.—We are pleased to find that among the donors to the fund in consequence of the appeal in our columns is an eminent foreign horticulturist, who sends a cheque for £5 as a token of his great respect for what the Society has done for horticulture at large, but desires that his name be not mentioned. We are glad also to see that not only the Veitch Memorial Trustees, but also the committee of the Horticultural Club, have made donations to the fund, and we trust that their example may be followed by the local and special societies generally. We could hardly have expected that our foreign friends would have contributed to the fund, but it is incumbent on all our "home-grown" horticulturists to assist in the good work according to their means.

WILLOWS.—A case recently tried in Edinburgh is interesting as showing the practical importance of a knowledge of species such as is now often thought to be of merely academic interest. On Saturday, January 31, 1903, Lord KYLLACHY gave judgment in an action by a firm of Willow growers and exporters, Antwerp, against certain chemical manufacturers, Edinburgh, in which they claimed payment of £238 12*s.* as the price of 75 tons of "red scorse" Willow peelings, which they supplied to the defenders under contract. The defenders refused payment on the ground that the cargo was not conformable to contract. Lord KYLLACHY in disposing of the case said: I have found this to be a difficult and perplexing case. So far as appearances went, I saw no reason to prefer the witnesses on the one side to witnesses on the other. It is, I think, according to the weight of evidence—(1) That what is known commercially as rood or red Willow coincides with what is known botanically as Salix fragilis. (2) That the only other Willows grown commercially in Belgium, or, so far as appears, elsewhere, are Weda (or Salix viminalis), and Rens (or Salix triandra), and that these two Willows do not contain salicin, and are not only botanically but commercially distinct from rood or red Willows, or Salix fragilis. (3) That the cargo in question contained not less than 10 per

cent.—and probably from 15 to 20 per cent.—of Weda (Salix viminalis), or, at all events, Weda and Rens (i.e., Salix triandra). (4) That as regards the suggestion that the admixture consisted partly of Salix purpurea or Salix rubra, which latter is described as a hybrid between Salix purpurea and Salix viminalis, it is sufficiently proved that these Willows, although containing salicin, are not known in commerce as falling within the description of rood or red Willow, and indeed are not known in commerce at all; and further, that it is not proved that the admixture complained of did in fact consist to any appreciable extent of Salix purpurea or Salix rubra. *Pharmaceutical Journal.*

KEW.—The following plant-lists and guides are on sale at the Royal Botanic Gardens, Kew. Those who require them sent by post should be careful to enclose the amount of the postage as well as the cost of the book:—

Key Plan and Index to the Royal Botanic Gardens, Kew. Fifth edition, 1900.

Official Guide to the Museums of Economic Botany. No. 2: "Monocotyledons and Cryptogams." 1894.

Official Guide to the Museums of Economic Botany. No. 3: "Timbers." Second edition, revised and augmented.

Official Guide to the North Gallery. Fifth edition, revised and augmented. 1892.

Hand-list of Trees and Shrubs grown in Arboretum (excluding Coniferæ). Second edition, 1902. Part II. (first edition): "Gamopetalæ to Monocotyledons." 1896.

Hand-list of Ferns and Fern Allies cultivated in the Royal Gardens. 1895.

Hand-list of Herbaceous Plants cultivated in the Royal Gardens. Second edition, 1902.

Hand-list of Orchids cultivated in the Royal Gardens. 1896.

Hand-list of Tender Monocotyledons cultivated in the Royal Gardens. 1897.

Hand-list of Orchids and Tender Monocotyledons, in one volume, cloth boards.

Hand-list of Tender Dicotyledons cultivated in the Royal Gardens. 1899.

Mycologic Flora of the Royal Gardens, Kew. 1897.

The prices are very low; the precise amount in each case can be obtained from Mr. W. WATSON, Curator, Royal Botanic Gardens, Kew.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual general meeting of this Society will be held at the Caledonian Hotel, Adelphi Terrace, on Monday, March 9, at 8 P.M. Mr. JOHN GREEN, of Dereham, Norfolk, has kindly consented to preside.

SIR WILLIAM HOOKER.—In a recent number, p. 90, we referred to a most interesting "sketch" by Sir JOSEPH HOOKER of the life and labours of his father, Sir WILLIAM HOOKER. This we rightly characterised as a charming piece of biography, but, by an oversight, we spoke of the sketch as an "account of the steady evolution of the Institution [Royal Botanic Gardens, Kew], under the guidance of successive directors." As the memoir in question refers exclusively to the work accomplished or initiated by the first director, our words convey a false impression, which we are desirous to correct. The article in question contains much in relation to the early history of Kew which is not generally known, and many details that have not previously been published, for which reasons we may take an early opportunity of again adverting to it.

ROYAL GARDENERS' ORPHAN FUND.—At the meeting of the supporters of this charity, reported on p. 125, it transpired that whilst many previous subscribers had forgotten to send their usual subscriptions, some one at Surbiton had forwarded to the secretary a P.O. for 5s., along with a voting-paper, but omitted to enclose a note of his name and address. The committee will be glad to learn who was the sender, that the amount may be properly entered in the books.

PUBLICATIONS RECEIVED. — *Proceedings of the Academy of Natural Sciences of Philadelphia,* volume liv., part 2; May to September, 1902. Contains: Two Fungous Diseases of the White Cedar, by J. W Harshberger; and other scientific papers and reports.—From the U.S. Department of Agriculture, Bureau of Soils: *Field Operations of the Bureau of Soils,* 1901. Third Report by Milton Whitney, Chief, and his assistants. The thoroughness with which such works of investigation as are herechronicled are undertaken by the Department is witnessed by the bulky tomes before us. The land has been divided into areas, and elaborate reports are published as a result of soil surveys over these several districts. The extent of country examined involves wide geological differences, and these are well brought out in both letterpress and illustrations. In a separate cover the maps of the counties are enclosed in a form handy for reference, and these also are prepared with a care that must make them of great value to all who have to study the important subject with which they deal.—*Proceedings of the Agri-Horticultural Society of Madras,* January to March, 1902.—*The Agricultural Journal of the Cape of Good Hope,* January, 1903. Contents: Agricultural Education in Cape Colony, Potato Disease (both these articles are illustrated), A Farmer and his Soil, &c.—*Agricultural News,* Barbados, January 31. Contains: Notes on Sugar Cane, Mangosteens, Grape Culture in British Guiana, &c.—*Santo Domingo: The Queen of the Antilles,* by Prof. J. W. Harshberger, University of Pennsylvania. "The Island possesses undoubted resources, mineral and agricultural, which ought to be developed. . . . The gardens of the people bespeak the general decay. . . . Unquestionably the course of events will lead to the annexation of the Island to the United States."—*Additional Observations on the Strand Flora of New Jersey,* by J. W. Harshberger. An interesting account of waterside plants. — *Bulletin from the Laboratories of Natural History of the State University of Iowa.* Contents: The Coleoptera of Colorado, by H. F. Wickham; Descriptions of American Uredineæ, IV., J. C. Arthur and E. W. D. Holway.

BELVOIR CASTLE.

[SUPPLEMENTARY ILLUSTRATION]

"Belvoir, neighbour to the sky,
That with light doth deck its brows—
Belvoir! Art's masterpiece, and Nature's pride."
Harleian Miscellany, 1679.

BELVOIR CASTLE, the seat of his Grace the Duke of Rutland, K.G., is situated in the N.E. corner of Leicestershire, close on the borders of Lincolnshire, and is 8 miles W. of Grantham; it occupies the summit of a sharp, conical hill, which is 200 feet above the land immediately adjacent, and 443 feet above sea-level. The name is pronounced Beever, and is spelt in eighteen different ways in the old deeds and manuscripts. It is derived from the beautiful prospect of the surrounding counties which may be seen from its windows and terraces. Peck, in his MSS. dated 1727, justifies the appellation by a list of 173 parishes in the counties of Nottingham, Leicester, and Lincoln which can be seen. On clear days, Lincoln Cathedral is plainly visible, although it is 27 miles to the N.N.E.

Several castles have occupied this site and disappeared; the oldest part remaining is inside one of the towers, and dates back to the early part of the 16th century; the present building was commenced in 1801. From its commanding position, this site was probably occupied many years before the Norman Conquest, but no records of such occupation are known to exist; some authorities, including Camden, have asserted that it is the ancient site "Margidunum" of Antoninus.

The first castle of which any record exists was built by Robert de Todeni, who came over from Normandy as standard-bearer to William the Conqueror; he also built a priory at the foot of the hill, where he was buried in 1088. The present noble owner is a descendant of this brave old Norman, but the name has changed through the property descending to daughters at various times. Nothing remains now connected with any gardens that existed previous to 1680; some of the old MSS. (of which there is a very large and choice collection) contain various references to vineyards, gardens, and things connected with them. Robert de Todeni gave a tenth of all his vineyards to the priory at Belvoir, and gardens are also mentioned in this charter of endowment: William de Albini III., one of the succeeding owners, who died in 1236, gave "to God, and the Church of St. Mary of Belvoir, and to the monks there . . . the Thorns and other trees growing in my Warren of Belvoir . . . saving to me and my heirs the hares, pheasants, and partridges."

The following interesting items occur in the old Castle accounts:—

	£	s.	d.
1659. The kitchen garden and gardens above ye hils.			
Feb. 4. For 36 Cherry-trees bought at Harlaxton	01	03	04
For 6 more Cherry-trees, at 7*d.* a tree	00	03	06
June 9. To ye French gardner for a gallon of sugar pease and 30 hartichocke plants	00	03	08
1663. Dec. 10. John Hoult, his bill for trees (vidz.), 40 Plum-trees and 40 Cherry-trees	02	14	00
April 17. For ye carriage of 23 Poplar bills out of Derbyshire to Belvoire...	00	6	00
1646-7. Paid to Thomas Milner, my Lord's gardner, his wages beinge in arrere att the takeinge of the Castle* ...	03	06	08
Ite pd. to Ropesley men for 22,000 of quicksetts†	03	00	00
Dec. 24. Eleven laborers that did help to get plants, at 8*d.* p. diem ...	00	06	08

The elevated position which gives the Castle such a commanding appearance for many miles, also contributes largely to the scenery of the flower gardens which adorn the hillsides, and enables many tender shrubs and plants to be grown successfully which are only found in milder climates. The soil is chiefly a strong, deep clay, belonging to the middle lias formation, a layer of a few feet in depth on the top of the hills consists of a sandy loam resting on ironstone, but no stone whatever is found after piercing this layer, nothing but heavy clay to an unknown depth. Rhododendrons and other peat-loving plants thrive here without any admixture of peat, and the Oaks and other timber trees are some of the finest in the kingdom.

The illustration represents a portion of the "Castle" flower-garden; this is surrounded on the N.E. and W. by a thick belt of shrubs, which give protection from cold winds, and the beds can thus be raised above the surface more than usual; a finer effect is secured in this way than could possibly be obtained on the flat system. The pale foliage in the distance is a bold mass of Abutilon Thompsoni, surrounded by Salvia patens, Iresine Herbsti, white variegated Pelargonium Princess Alexandra, and Alternanthera amœna. On the left, in the foreground, tall Ivy-leaved Pelargoniums Jacques Caillot (purple), and tall plants of Swainsonia galegifolia alba, are dotted on a carpet of Artemisia Stelleriana, and surrounded by Iresine Herbsti, golden Pelargonium Verona, Viola Blue Bell, and Echeveria; on the right, in the foreground, is seen a mass of rose-coloured Begonias, surrounded by Veronica Andersoniana variegata, Iresine Lindeni, Golden Feather, and Echeveria; this bed had a centre plant of Dracæna indivisa. In the centre of this garden (on the right of the picture) is a fine specimen of Magnolia umbrella, and behind it a large copper Beech-tree. The tall trees on the left are large specimens of Quercus Ilex, which form an excellent shelter from the north winds. *W. H. Divers.*

(To be continued.)

* The Castle withstood a long siege in the Civil Wars, but had to surrender to the Parliamentary Forces on February 3, 1646.

† Whitethorn plants for hedges.

EARLY SPRING FLOWERS AT EXETER.

A WEEK of summer-like weather, both as regards temperature and sunshine, indnced me on February 11 to see what indications of spring were manifesting themselves out-of-doors in a Devon nursery, so being in the ancient city of Exeter, which may be correctly described as the central axis of the county from which railways and most other things radiate, it was an easy and agreeable occupation to spend an hour or two in the nurseries of Messrs. Robert Veitch & Son, the results of which, at this early period of spring, may be of some interest to the readers of the *Gardeners' Chronicle.*

Of course, my first interest was in what was to be found in flower in the open, and it goes without saying that Crocuses and Snowdrops were much in evidence, but the broad belt of yellow Crocus a foot or more wide along the edge of one of the garden walks reflecting the bright sunshine, was brilliantly visible from distant parts of the nursery. Here also were clumps of Christmas Roses, with abundance of flowers of the pure white and purple forms. Amongst Saxifragas we noticed the white flowers of Saxifraga oppositifolia major; but the new S. Grisebachi (fig. 53), was very striking in the sunlight, the crimson tops of the flower-spikes passing into pale pink below, being well seen above the foliage. Large masses of the double Arabis alpina were showing flower well, as was also Potentilla alchemilloides, and the pretty little Triteleia uniflora.

Amongst flowering shrubs may be mentioned the following:—Rhododendron Nobleanum, with numerous large trusses of deep rose-coloured flowers, a most refreshing sight at this early period; Prunus Pissardi, Exochorda grandiflora, Corylopsis spicata, and Hamamelis arborea, with its curiously twisted yellow flowers.

In a cool house we noticed some very compactly grown plants in pots of Rhododendron davuricum Early Gem, all of which were in full flower, notwithstanding they had been lifted from the open at Exminster Nursery only the day before. Of other plants under glass worth mentioning were the following:—Berberis congestiflora var. Hakeoides; Camellia reticulata, the fine red flowers of which are extremely showy. Though this plant is under glass at Exeter, it grows well, forming large bushes and flowering freely out-of-doors in Cornwall. A single pure white Camellia, called Devonia, was finely in flower in the same house. Daphne indica var. rubra was also a prominent object, as well as a group of the delicate Primula floribunda var. Isabellina, each plant of which was crowded with the pretty pale yellow flowers. Amongst other Primulas were P. stellata Giant White, P. obconica grandiflora, with pinkish-white flowers. Speaking of this species reminds me that, in answer to a question, I was informed that this species has never produced any ill-effects upon those engaged in handling the plants at the Exeter Nursery. Grevillea alpina, a Proteaceous plant with singularly twisted flowers, white tinged with pink, was also well in flower. A good healthy stock of the lovely Transvaal Marguerite (Dimorphotheca Eckloni), though not actually in flower, was full of buds ready to expand, as was also Arctotis aspera. The delightfully fragrant Boronia was also full of buds, but not sufficiently forward to emit its odour. On the other hand, several species of Acacia were attractive, not only for their flowers, but also for their fragrance. In the Orchid-house the presence of a flowering plant of Dendrobium heterocarpum aureum was manifest by the delightful scent which filled the house.

To come to more general things, which however lent brightness at this period of the year, Cinerarias, Carnations, Begonias, and such like, were fully represented. *J. R. J.*

THE CODLIN-MOTH.

DURING the past few years, more stringent measures have been taken than hitherto to annihilate this dreaded pest (fig. 52) of the orchard and fruit garden; and there is still room for continued effort, if one may judge from the state of many orchards, and of the fruit sent to market. From the present date till early in the month of March is the best time to spray the trees, while the buds are dormant, using the caustic alkali wash so frequently mentioned in these pages. This wash not only destroys the eggs of many kinds of insects that hibernate under the rough bark of the trees, but it destroys moss and lichens, which infest trees in damp localities.

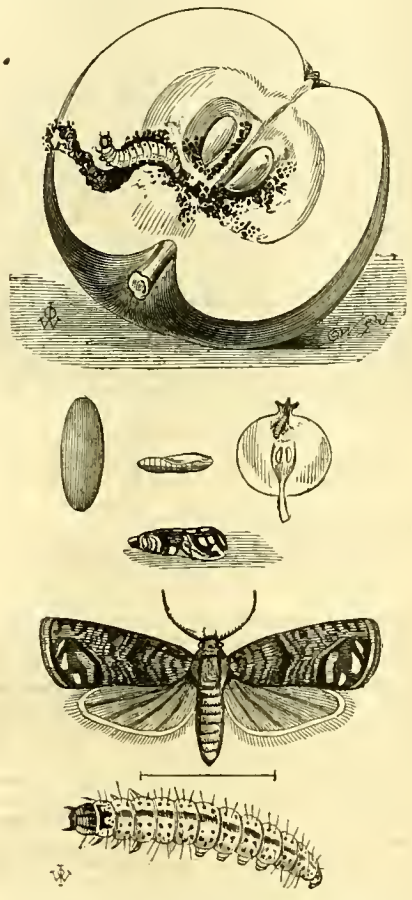

FIG. 52.—THE CODLIN-MOTH: CARPOCAPSA POMONELLA. Caterpillar highly magnified; perfect insect; cocoon, and chrysalis in two stages.

It is estimated that every moth lays about 250 eggs, which in a favourable season turn into caterpillars, that eventually find an entrance to the fruits, which fall to the ground long before they are of full size, with the result that quite half, if not a larger proportion of a crop is spoilt. Now, if this wholesale destruction of fruit can with a little extra perseverance be lessened, surely the fruit-growers of this country would be lacking in their duty if they did not use every means to stamp out this pest. There are several useful sprayers on the market to suit all kinds of customers, and I have found the wash sent out by Messrs. Campbell, of Manchester, to be what they claim for it; it is sent out in canisters sufficient to make 50 and 100 gallons respectively, and is moderate in price.

And while touching upon this subject, it would be well to consider whether our American friends do all they can to mitigate this evil, as I have it on good authority that the codlin-moth is very prevalent in that country, and that large numbers of this maggot are annually imported into this country with their fruit during the autumn months; and if such is the case, there is not the least doubt that when the barrels are opened, these maggots crawl out, and doubtless are carried into the country orchards and gardens by salesmen's empties.

[When the seeds are eaten the fruit falls to the earth, the maggot crawls out, and ascends the tree, gnaws a little bark away, and in the recess it has made, becomes a chrysalis almost immediately. ED.]

I am of opinion, could we but rid our orchards and fruit trees in general of the many pests, such as the Apple-blossom weevil, bark-louse, mussel-scale, codling-moth maggot, Apple-sucker, red-spider, moss, lichen, &c., we could grow as good, if not superior, fruit, to that sent from the other side of the Atlantic, and in quantity enough to meet the demand in this country. But to effect this, we must spare no effort to eradicate these many enemies, which can only be done by paying strict attention to the annual winter washing of fruit trees, and again after the fruits are set, gathering up all early dropped fruit, and burying it, or giving it to the farm-stock, and early in October placing grease-bands around the stems of the orchard trees in order to catch the winter-moth; and an annual dressing of quicklime and soot applied to the ground, especially to orchards under grass. Perhaps some of our leading market growers or salesmen could throw some light upon the importation of the codlin-moth maggot from abroad; if so, I feel sure it would be both interesting and instructive. *J. Mayne.*

CULTURAL MEMORANDA.

ALLAMANDA HENDERSONI.

THIS old-fashioned stove climbing plant holds its own against all new comers. It is a strong grower and free-flowerer, producing its large trumpet-shaped pale yellow flowers in regular succession all through the summer and autumn months. Plants grown on, and shifted into 12-inch or 15-inch pots in due time, and trained over a trellis fixed under the roof-glass at about 15 inches therefrom, will cover a good space of same within a few years from the cutting stage. The somewhat stiff woody shoots should be trained thinly over the trellis, from which the young flowering shoots should be allowed to depend. The plant is also admirably adapted for furnishing pillars and wall-trellises in stoves. So popular and effective is the Allamanda, that one or two varieties trained to balloon-shaped trellises are generally included in collections of stove and greenhouse flowering plants, six of each, staged at leading provincial shows. Cuttings, say three inches long, taken off with a little of the matured wood ("a heel") attached, and inserted round the edge of 3-inch pots (previously crocked and filled to the rim with some of the mixture indicated, but finer, and surfaced with sand) and watered, will soon root if plunged to the rims in a box containing three or four inches deep of dry sawdust, and sufficiently deep to admit of a square of glass being placed thereon without touching the cuttings. The box should be placed on the front stages over the hot-water pipes, or on a shelf in the stove, hot-water pit, or anywhere in heat, potting off the little plants into the same sized pots when well rooted, returning them to a similar position, affording water, and shifting them into larger pots before the roots become matted, they will in due time attain to large dimensions.

IMANTOPHYLLUM MINIATUM.

This old favourite inmate of the stove or warmer greenhouse still holds its own against new comers, the large heads of delicate reddish-orange flowers being very telling in effect during

the spring and early summer months. The compost that the plants succeed best in consists of three parts fibrous loam and one of peat, with a liberal dash of sand and small charcoal added, this being well mixed before being used. The pots should be well crocked, the potsherds being covered with a little moss, or a few half-rotted leaves, to insure good drainage. In repotting the plants, be careful not to over-pot them. On the contrary, stuff them into pots in which there is a clear space of say 1 in. between the ball of earth and roots, and the edge of the pots, so as to admit of the compost being rammed moderately firm round the roots in potting, prior to which the ball of earth and roots should be pricked round with a pointed stick, in order to liberate the roots to some extent, the better to enable them to lay hold of the new mould. Water so as to settle the soil about the roots, afterwards applying it sparingly until the roots have pushed into the rooting medium; after which the supplies of water at the roots must be more frequent, always giving sufficient to moisten the ball of earth and roots. When the flower-spikes appear, occasional applications of weak liquid-manure will greatly assist in the production of fine spikes of large flowers.

POLEMONIUM HIMALAICUM.

This hardy perennial border plant is well worthy of cultivation in every garden, no matter however small; the large branching spikes of lovely sky-blue flowers render it a charming and most desirable garden plant. It is, like the two or three other species of "Jacob's Ladder," of very easy cultivation, doing well in any good garden soil; but the best results are obtained from plants set in a deep, rich, well-drained, sandy loam. The plant is increased by seed and division of the roots, and flowers from May to August. *H. W. W.*

SAXIFRAGA GRISEBACHII.*

THIS remarkable species (fig. 53) received a First-class Certificate from the Royal Horticultural Society at the last meeting, viz., Feb. 10. Not only is it a novelty, but it was collected in quite a new district, having been found at between 4,000 feet and 5,000 feet altitude in Albania and Macedonia. In the dormant stage, the plant is not unlike a small-growing S. longifolia, that is, as regards the largest rosettes; while in others, it partakes of the characters S. calyciflora (media), and particularly in the form and clustering character of the rosettes. Among the chief points of interest and beauty is the purplish-crimson colour of the miniature blossoms. From quite an early stage a purplish-red tint is visible in the inflorescence, even before it emerges from the crustaceous rosette. The peduncles are about 4 inches long, purplish in colour, and densely hirsute, the points now and again tinged with the same colour as the stems. The paniculate inflorescence is somewhat crowded at the apex, and freely furnished with short, bluntish, oblong, decidedly green-tipped leaves, which also render it distinct. The species will in all probability submit to the usual cultural conditions of the members of the genus, and when fully established will prove more free-flowering than those near approaches to it have done to the present time. *E. Jenkins, Hampton Hill.*

ENQUIRY.

FRUIT ROOM.—Will some of our experienced gardening friends kindly afford "Subscriber" some facts in connection with the erection of a fruit-room, or rather of a store for Apples and Pears, he being about to have a room made, and is told by a gentleman that Apples and Pears keep best set singly on stone slabs in a dark cellar with very little light and ventilation.

* *Saxifraga Grisebachii*, Degen and Dörfler, in *Denkschrift d. Kais. Acad. d. Wissenschaft*, Wien, lxiv. (1897), p. 721, tab. II., f. 3.

HOME CORRESPONDENCE.

DAHLIAS. — Your correspondent "C. D. Z.," criticises my notes regarding Dahlias. I have no wish to enter into any controversy on the matter, but am prepared to assert that the replanting of stock roots is, in many cases an advantage, especially when the plants are used for effect and not so much for the production of show flowers. Stock roots produce the earliest flowers, and I have never yet experienced a summer that was long enough to put an end to the flowering season of a Dahlia. This is always left for the frost to do. I might also give instances where it is a distinct advantage to the quality of the flowers to grow them from stock roots, and will mention two, viz., Mrs. Peart and Marguerite Bruant. Stock roots split up, allowed to start slowly in cold frames, and planted out as soon as the weather is suitable, give very little trouble. Work under glass in spring is generally superabundant, and there are very few private gardeners who are prepared to add to their labours by raising a few hundred Dahlias from cuttings at that busy period, and to afford them the after-attention they need, to make good plants for planting out in May. We certainly often hear of the advantages to be gained by using absolutely young plants, but we very seldom indeed see them. In order to mitigate the pressure of work in the spring, my practice is to take cuttings in summer and to winter them in small pots, and let them start away under cool treatment in the spring. Had "C. D. Z." the patience to wait, this would have been outlined in due season, and he, certainly, does not want personal information, for he writes with authority. *J. C. Tallack.*

AGAVE AMERICANA. — I gather from "W. J. P.'s" note, p. 106, that he is under the impression that the flowering Agaves, which formed the subject of the supplementary illustration on Jan. 21, are permanently planted in the open ground. The wording of a portion of the accompanying article certainly rather favoured that supposition, but the quotation from the superintendent's letter shows that this is not so, but that they are afforded glass protection during the winter. Mr. Moorman writes:—"The two plants grew in a house 12 feet in height, and the glass had to be broken so as to allow them to develop," i.e., to allow the flower-stems formed under glass shelter to ascend. Later on, when the weather became more genial, they were evidently removed from the glass structure, and placed in the position in which they are seen in the photograph, where they perfected their flower-stems. I imagine that leaving these Victoria Park Agaves unprotected in the open through the winter would assuredly put an end to their existence. It is a different matter in the genial climate of the south-west, where the other photograph was taken. There Agaves may be planted out from 6-inch pots, and left year after year without attention or protection, until at length a flower-stem is thrown up and the plant blossoms and dies. Agaves that reach a great size do not, however, invariably flower. The finest specimen I have ever seen either in England or abroad, was growing in a Torquay garden, but died last year without having flowered. The dimensions of this Agave were, height of tip of tallest leaf from the ground, 11 feet; girth of plant, 41 feet; length of longest leaf, 8 ft. 11 ins.; breadth of leaf, 19 inches. A few years ago a splendid specimen of the variegated form of Agave americana growing at Kingswear,

FIG. 53.—SAXIFRAGA GRISEBACHII.
Awarded First-Class Certificate at the last Meeting of the Royal Horticultural Society.

South Devon, about a couple of hundred yards from the one illustrated on p. 69, flowered. A little earlier a fine example growing beneath the rock-walk, Torquay, in a portion of that town's public gardens, blossomed; and I have seen two in flower near Berry Head, the western promontory of Torbay. But as "W. J. P." writes, they are to be viewed to best advantage in the Isles of Scilly, where I have noted a group of several flowering simultaneously. *S. W. F., South Devon.*

ROYAL GARDENERS' ORPHAN FUND.—If it is decided to send out collecting cards, I am at present at liberty, being on the look-out for a situation as head gardener, and if about a dozen others similarly volunteered, each undertaking to address 600 or 700 envelopes, the work would readily be accomplished. I would suggest that the addresses be taken from the *Horticultural Directory* for the present year, and that one or more counties, according to size, be allotted to each correspondent. It may be also worthy of note, that there are many children now receiving the benefits of the Institution whose fathers were "single-handed" gardeners, or gardeners in small places, and the names of whom do not appear in the *Directory*. An effort should be made to reach this very numerous class; and as a means of bringing the claims of the Institution before them, I would suggest that suitable literature should be sent to the secretaries of local flower shows, to be distributed at their annual exhibitions. I enclose P.O. for 2s. 6d. as a small donation to the fund. *R. Cubbon, 4, Fern Bank, Victoria Road, Hale, Cheshire.*

AN EARLY SEASON.—An event, such as the opening of the flowers on pyramidal Pear-trees out-of-doors at such an early date as Feb. 12, is almost, I think, unprecedented. Here, the Pear-trees have been for some days quite white with bloom partly open, and several varieties have their cymes fully exposed; and on two trees —Duchesse d'Angoulême and Princess—several fully developed blossoms are visible. In 1902, the first Pear-tree to open its flowers was a Duchesse d'Angoulême, but that was two months later, i.e., April 16; even then the majority of the young fruits were destroyed by subsequent frosts and cold rain, therefore what sort of a fruit-crop may we anticipate this year if sharp frosts should occur during the next six weeks? *Geo. Woodgate, gr., Rolleston Hall, Burton-on-Trent.*

[From Sevenoaks we lately received Strawberry-runners of the variety Monarch, in full bloom. ED.]

WINTER WALLFLOWER, SUTTON'S EARLIEST OF ALL.—With the exception of a few days in January, we have been able to cut Wallflowers continuously since the early part of November, and no protection has been afforded, beyond planting them on a south border. At the time of writing (Feb. 6), the border presents a wealth of flower. I have grown this variety for five years, and it has never failed to produce flowers freely during. If protection is given during severe weather, the supply would be constant. The seed should be sown about the first week in June, and in the middle of July the seedlings pricked out into a nursery bed, allowing six inches between them each way, to enable the plants to make sturdy growth. When they are established, stopping should be carried out. Make the final planting on a dry sunny border, not later than the end of September. *W. P. Bound, Gatton Park Gardens, Reigate.*

THE FORCING OF DAFFODILS. — I fully endorse all that your correspondent, Mr. E. Jenkins, says regarding the forcing of Daffodils on p. 82 in the issue of the *Gardeners' Chronicle* of the 7th inst.; but there are two or three other points that might be added. The lack of success might be traced both to the want of timely preparation, and to the non-observance of the laws of Nature under which these bulbs thrive outside. In order to have the old double-flowered variety Van Zion (Telamonius plenus) in perfect flower during the latter part of December and in January, it is essential that the bulbs be strong, and potted-up or boxed during the preceding July or August, so as to allow a long period for the formation of roots. The bulbs must be placed in heat by easy stages, that is by gradually encouraging the growth till the bulbs are finally transferred to the higher temperature; and even at that time the scape must be well out of the bulb, and it should proceed at an even rate of growth with the foliage. If the foliage is seen to be outstripping the scape, the bulbs are then not in a condition to respond to warmth in a desirable manner, and the foliage will continue to lengthen and the scape remain behind to shrivel up or the flowers to open in a deformed state. If attention to this matter receives timely thought, and the temperature is lowered a little, and air is afforded at the apex of the house or pit, the prevention of an entire loss will be the result. As the different species of Daffodils vary in behaviour when brought into heat, I advise that a few bulbs should be tried, till one is thoroughly versed in the peculiarities of individual varieties. Although the common English Daffodil grows rapidly in its native habitat outside, bringing them into flower artificially very early is somewhat difficult to the uninitiated cultivator. As I pen these few notes, the Daffodils in the plantations are about 3 inches high, and full of flower-buds. *W. Sharpe.*

COLONIAL NOTES.

THE BLUE COLOUR IN HYDRANGEAS.

MR. A. C. BARTLETT'S letter in the *Gardeners Chronicle* of October 11 is in some measure informing, but I think that he and others may easily discover that the temperature and degree of air and moisture in the soil determine the nature of the food imbibed by the roots, and consequently the quality of the sap made available to the flowers. Flowers opening in a rising temperature do not receive sap of the same chemical nature as those which advance in a falling temperature.

The Hydrangea flowers often appear over a considerable length of time, and it may be noted that spring flowers are rarely blue, excepting when they come very early, or are subjected to a return of cold weather, which chills, and excludes air from the soil. Late autumn flowers are frequently blue, and they rarely escape this colour where two or three frosts or continuous rains prevail. Where blue, white, and pink flowers occur at the same time, it may be seen that the wood is of unequal vitality, and also that the roots supplying the respective parts are working in soil differently endowed as to light, heat, and air.

The effect of light in producing colour must always depend on the nature of the sap as it is prepared by the root and leaf. Where leaves are shaded, the roots are generally shaded also; hence, imperfect feeding and debilitated sap, which must of necessity produce a new or exceptional colour in the local flower. The Hydrangea is hyper-sensitive to change of temperature. *C. B. L., Melbourne, Victoria.*

JAMAICA.

In the *Bulletin of the Botanical Department*, Jamaica, for December, 1902, Mr. W. Fawcett mentions that alterations are to be made in the scope and title of this publication. The first number of it was issued in April, 1887, three months after the arrival of Mr. Fawcett as Director of the Department. He now writes that:—"The Botanical Department, or, according to its official title, the Department of Public Gardens and Plantations, has always been concerned with the agricultural development of the Colony, and the bulletin has been an index, or outward sign, of the kind of work that is being carried on. Fifty numbers of the old folio series appeared at irregular intervals to December, 1893, and in January, 1894, a new octavo series was commenced, which has been published once a month ever since. It has been decided now to adopt it as the organ of the Department of Agriculture, which was established by His Excellency the Governor last year with the Honourable the Colonial Secretary as Chairman. With the wider outlook, and to mark that attention will not be confined to the planting side of Agriculture, it has been thought well to alter the name, and it will henceforth be known as the *Bulletin of the Department of Agriculture, Jamaica.*"

MELBOURNE.

NOTES FROM THE BOTANIC GARDENS.—During the past few weeks (December) there has been a perfect blaze of colour in our Botanic Gardens. This was due not alone to the herbaceous or annual border flowers, or even to the Roses (of which we have at least six hundred kinds distributed about the grounds), but also to the flowering trees and shrubs. Visitors from the neighbouring states have expressed their astonishment at the marvellous effects and glorious splendour of large Sterculias (notably S. acerifolia or Flame-tree); the Erythrinas or coral trees—all scarlet or crimson; the masses of orange-coloured Grevillea robusta; the canary-yellow of the huge bushes of Cassia lævigata; the heavenly blue of Jacaranda; the royal purple of the Bougainvilleas; the fleshy-pink of those magnificent trees of South Africa—Dais cotinifolia, and the so-called Cape Chestnut, Calodendron capense. Nothing need be said of the Mesembryanthemums, for they have been seen by everyone who has walked or driven along the Alexandra drive. By the way, we have a novelty here in the way of Pentstemons, P. heterophylla, the flowers of which are cœrulean blue, set on fairly long spikes, and when propagated and massed in borders or beds, it will no doubt become a very popular plant. The Swainsonas are not cultivated in private gardens so much as they deserve. Here there are at least a dozen varieties of S. galegifolia in shades of maroon, purple, pink, crimson, and there is also a pure white variety. *W. R. Guilfoyle, The Garden Gazette.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

FEB. 10.—*Present:* Dr. M. T. Masters (in the chair); Messrs. Baker, Fraser, Odell, Michael, Bowles, Worsdell, Sir John D. Llewelyn; Drs. Cooke and Rendle; Revs. W. Wilks, Engleheart, and G. Henslow (hon. sec.).

Eelworms.—A grower sent a communication relating to eelworm in Cucumber-houses, and stated that:—"Twelve houses, each 200 ft. by 20 ft., used for growing Cucumbers and Tomatos, have become infested with eelworm. It is not convenient to either change the crop grown, or to allow a long period of idleness." Mr. Odell reported on this case as follows: "To prevent recurrence of this pest, drastic measures must be taken to destroy the eggs of the eelworm (Tylenchus); merely dressing the bed with lime and soot will not be effective. (1) The whole of the brickwork inside the house should be scrubbed with a hard brush and strong soda water, afterwards lime-washing the same. (2) All barrows, baskets, and other tools used to take out the old soil should be treated as infectious, and thoroughly cleansed. (3) The soil used for refilling the beds should be as fresh as possible; soil standing or stacked near the houses should not be used. (4) Avoid stable or farmyard manure for a time if possible; use artificial manure instead. It should be remembered that organic manures are frequently a source of infection, as the nematodes can pass uninjured through the intestines of an animal fed on infected fodder. The leaflet of the Board of Agriculture on the knot-disease caused by eelworms advises that the interior of the house should be washed with carbolic acid one part, and water eight parts. This I should think would be more effective than the strong soda solution recommended."

Grubs in soil.—Specimens were sent by Miss M. C. Edlmann, Hawkwood, Chislehurst, upon which Mr. SAUNDERS reports as follows:—"The grubs (so-called) proved to be of two kinds; those which were most numerous had unfortunately become chrysalides, so that it is impossible to name them with any certainty. I believe that they belong to the family Bibionidæ, the same family to which the very common flies, the 'St.

Mark's' flies, belong; they are so named because they are often found flying about in large numbers on or about St. Mark's day (April 25). They are in a perfectly harmless condition now, but as grubs they feed on the roots of plants, and are the cause of much injury to them. There were two specimens of the 'galley-worm,' Polydesmus complanatus, one of the Myriapods nearly allied to the Julidæ, which are most destructive creatures. Insecticides have little or no effect on them, but they may be trapped by burying small slices of Turnips, Mangolds, or Carrots just below the surface of the soil near the plants they are attacking. A small wooden skewer should be stuck into each, so as to show where they are buried; these traps should be examined every morning."

Bulbs with dying roots.—Dr. VOELCKER inquired on behalf of a lady who found that bulbs of Roman Hyacinths, Freesias, and Daffodils, after being potted and placed in a greenhouse, were apparently growing well, but the roots had decayed. Mr. WILKS observed that this was due to the bulbs not having been allowed to make roots in ashes for a month previously; so that the shoots were living at the expense of the bulb only, not having sufficient roots for a supply, the latter were starved.

Cattleya, Rapid Flowering.—Mr. ODELL called attention to the very short time in which a plant exhibited at a shew had taken to flower, for it was sown only eleven months ago.

Hybrid Calanthes and the Mendel Theory.—Dr. MASTERS showed purple and white flowers received from Mr. Chapman, who wrote as follows: "The hybrid Calanthes, C. Sibyl (pure white) and C. Oakwood Ruby (the deepest coloured variety in cultivation), were both obtained from the same pod of seed, the original cross being between C. Veitchi and C. rubro-oculata. From selections of the best varieties derived from this batch of seedlings and intercrossing amongst themselves, and continuing the inbreeding for four or five generations at Oakwood, these remarkable results were obtained. This is interesting at the present moment, seeing that Mendel's *Laws of Inheritance* have been placed so prominently before the members of the Scientific Committee of the Royal Horticultural Society. It certainly goes to prove that, instead of reversion to the original crossing by the process of inbreeding, the result has produced and placed before us the widest possible variations from the original cross, and from each other; showing that Mendel's *Laws* cannot be applied [universally] in the way some of our specialists have indicated. It may be interesting also to state what effect inbreeding has had upon the constitution of these plants. It is impossible to describe the diminished size of the bulbs while the general constitution of both varieties is exceedingly delicate. C. Oakwood Ruby I consider the most difficult subject to cultivate among the whole genus Calanthe. I regard it as one of the most difficult Orchids I have ever had to deal with. I hope, before the season is over, to place before the Committee other results of inbreeding of Orchids, which, I think, will go far to prove the inapplicability of Mendel's Laws to Orchids."

Chinese Primrose, Ivy leaved.—Dr. MASTERS showed drawings of this variety taken in 1887, the leaves being lobed like those of an Ivy, and the flowers being remarkable for having only four petals and abortive organs. It appears to be precisely the same now, not having advanced at all.

Cypripedium synanthic.—He also showed drawings of the flower of Cypripedium villosum received from the *Horticole Coloniale*, having six stamens and two stigmae, the sepals being multiplied. The appearances were due to the fusion of two or three flowers into one.

ROYAL GARDENERS' ORPHAN FUND.

ANNUAL MEETING.

FEBRUARY 13.—The supporters of this excellent Fund assembled at the annual general meeting on the above date at Cannon Street Hotel, E.C., but the attendance, as usual, was not large. The chair was taken by Mr. H. B. May, Chairman of the Executive Committee.

REPORT OF THE EXECUTIVE COMMITTEE.

"The presentation of their fifteenth annual report enables the Executive Committee to again offer their congratulations to the supporters of the Fund on its continued prosperity, as although, unhappily, there has been an appreciable falling off in the regular annual subscriptions, the total receipts for the year (exclusive of legacies) show a gratifying increase of £110 1*s.* 7*d.* over the record of the previous year.

"Grateful acknowledgment is made of the receipt of a legacy of £250 from the trustees of the will of the late Mr. Alfred H. Smee, one of the founders, as also one of the original trustees of the Fund; and of a legacy of £100 from the executors of the widow of Mr. John Wills, who, in the early days of the Fund, was a member of the Committee, and until his death was incessantly active in promoting its best interests.

"The Committee, with much regret, record the death of two of the Vice-Presidents, Mr. E. J. Beale, of the firm of Messrs. James Carter & Co., and Mr. William Bull. Mr. Beale was one of the first to assist in the establishment of the Fund in 1887, and it will be within the recollection of many of the subscribers that it was in his office that practical shape was first given to the movement.

"The number of orphans who have been elected to receive the benefits of the Fund during the past fourteen years is 155, and the total amount expended in allowances during the same period is £10 937 7*s.* 6*d.* The number of children receiving the full benefit of the Fund is seventy-three, and during the year compassionate allowances have been made under Rule XIV. to fifteen of the candidates waiting for election.

"With reference to the election this day, the committee believe that they are but carrying out the wishes of all the subscribers in recommending that the whole of the candidates (24 in number) be elected without a ballot, in commemoration of the Coronation of His Majesty King Edward VII., and his most gracious Consort, Queen Alexandra, the patroness of the Fund.

"The committee again most cordially acknowledge the valuable assistance rendered to the Fund by local secretaries and associations of gardeners and others in the districts of Altrincham, Bournemouth, Bradford, Bristol, Chesterfield, Chislehurst, Reading, Rugby, Sheffield, Wimbledon, &c., by means of concerts, and the sale of flowers at exhibitions, on behalf of the charity, and they earnestly hope that during the present year the gardening communities in other districts may be prompted to follow so good an example.

"The committee have much pleasure in recording the fact that on the occasion of the Coronation of His Majesty King Edward VII., and of Her Majesty Queen Alexandra, Mr. John Pinches, of Camberwell, very kindly presented a handsome Coronation Medal to all the children on the Fund. The committee thank him most cordially for his generous gift.

"With keen regret, the committee have to announce the retirement, through pressure of other engagements, of Mr. J. B Stevenson, the local secretary for the Bournemouth district, and who, for the past twelve years, has, at his own cost, most admirably discharged the duties of his office. In the name of the subscribers, and on their own behalf, the committee tender to Mr. Stevenson most grateful thanks for his valuable services.

"The annual festival held at the Hotel Cecil on May 8, under the genial presidency of Leopold de Rothschild, Esq., was of the most successful character, and the Committee most heartily desire to thank all who assisted them in bringing about such a happy result. The Chairman's whole-hearted appeal on behalf of the Fund met with a most generous response, the subscription list amounting to £387 1*s.* 6*d.*, or an increase of £38 14*s.* 5*d.* over the previous year's list. Very cordially indeed do the Committee acknowledge their indebtedness to Mr. Leopold de Rothschild for his great kindness, and it affords them the greatest pleasure in recommending that he be this day elected a Vice-President.

"The supporters of the Fund will doubtless be as gratified to know, as the Committee are to make the announcement, that the Right Hon. the Earl Carrington has most kindly promised to preside at the next festival, which has been fixed to take place at the Hotel Cecil on Tuesday, May 5. The Committee feel sure that they will not appeal in vain for the support of all lovers of horticulture and friends of the Charity, in their efforts to still further enhance the popularity of the festival.

"Several cases having come before the Committee in which, owing to exceptional circumstances, they have been satisfied that it would have been greatly to the advantage of the children concerned if the benefit of the full allowance of 5*s.* per week could have been given for a somewhat longer period than is now fixed by the rules, invite the subscribers to-day to consider and, if approved, to adopt such an alteration in Rule XIII. as will enable them in future to deal with such cases in the manner which they may consider will be most conducive to the welfare of the children under the special circumstances of each particular case.

"The alteration proposed is to add the words printed in italics in the following sentences in Rule XIII., commencing in line 6:—'No child shall receive annual support after having attained the age of fourteen years, *but the Committee may, at their discretion, in exceptional circumstances, continue the usual allowance for a further period not exceeding two years. Further,* the Executive Committee, at their discretion, shall have power to grant a sum not exceeding £10 towards apprenticing or otherwise promoting the start in life of any orphan on whose behalf application shall have been made to the Committee.'

"The members of the Committee who retire by rotation are Messrs. W. Bates, H. J. Jones, H. B. May, J. W. Moorman, W. Nutting, G. Reynolds, A. W. G. Weeks, and J. H. Witty; and Messrs. Bates, Jones, May, Moorman, Nutting, Reynolds, and Witty, being eligible, offer themselves for re election. Mr. G. Caselton, Garden Superintendent, Crystal Palace, is nominated for election to the seat rendered vacant by the retirement of Mr. Weeks.

"The Committee most heartily congratulate Mr. Sherwood on his restoration to health, thank him most sincerely for his continued efforts in promoting the welfare of the Fund, and have great pleasure in again nominating him for re-election as Treasurer.

"The best thanks of the Committee are also due, and are hereby tendered, to Mr. M. Rowan and Mr. P. R. Barr, for their valued services most cheerfully rendered as Auditors. Mr. Barr is the retiring Auditor, and is nominated for re-election."

STATEMENT OF ACCOUNTS.

The principal sources of receipts in 1902, were as follows:—Annual Dinner, £187 1*s.* 6*d.*; Subscriptions, £272 16*s.* 4*d.*; from local Secretaries, £50 6*s.* 6*d.*; Donations, £220 17*s.* 7*d*; from local Secretaries, £19 0*s.* 8*d.*; legacies from Mr. A. H. Smee and Mrs. Jno. Wills, £350; Emma Sherwood Memorial, £13; Dividends on Stock and Interest on Deposit, £309 5*s.* 4*d*; other items, £17 19*s.* 10*d.* Total (including balance of £728 15*s.* 9*d.* from last account), £2,699 3*s.* 6*d.* On the expenditure side, a sum of £1,006 was distributed among Orphans; £73 15*s.* as Grants in Aid; and £13 by the Emma Sherwood Memorial, making a total of £1,092 15*s.* Other expenses were: Annual Dinner, £172 15*s.* 7*d.*; Secretary's Salary, £100; Printing and Posting list to Subscribers, £36 10*s.* 5*d.*; various other items show an expenditure of £98 5*s.* 2*d.* There are balances at Bank on deposit and in hand of £1,198 17*s.* 4*d.*, making a total of £2,699 3*s.* 6*d.*

PROCEEDINGS.

In proposing the adoption of the report and balance sheet, the Chairman said that the increase in the receipts was chiefly due to donations. It was most desirable that there should be more annual subscribers, and that previous supporters of the Fund should not withhold their subscriptions because there was no election on that occasion. An interesting letter was read from Mr. Geo. Stanton, Park Place Gardens, Henley-on-Thames, relating that in the past seven years the Orphan Fund box in the garden bothy had been the means of obtaining a sum of over £12. The gardener on duty there each Sunday passes the box around for pennies, and Mr. Stanton has never heard of a refusal on a single occasion. This practice might be adopted with good results in other gardens. In reference to the candidates for election, the Chairman said that the committee had thought well to advise that all of them should be elected that day by resolution. This was but following the example of the Gardeners' Royal Benevolent Institution, which had placed upon its funds the whole of the unsuccessful candidates last year who were subscribers, to mark the Coronation.

Dr. M. T. Masters, F.R.S., in seconding the adoption of the report, especially congratulated the committee upon the proposal to alter the rules, in order that discretionary powers might be given the committee to assist necessitous children for a period of two years beyond the present time limit. He hoped the meeting would sanction that change unanimously.

On the proposition of Mr. A. Dean, seconded by Mr. W. Cutbush, Mr. Leopold de Rothschild was elected a Vice-President of the Fund. Mr. N. N. Sherwood was then unanimously re-elected Treasurer, on the proposition of Mr. Bates, seconded by Mr. Roupell.

Mr. Rudolph Barr was re-elected Auditer, and the *personnel* of the Committee was amended as suggested in the report above. Mr. A. W. G. Weeks, who has retired from the Committee, was elected a Vice President.

Mr. Brian Wynne was unanimously re elected Secretary at a salary of £100 a year, the Chairman making appreciative reference to the manner in which Mr. Wynne discharges the duties of his office.

CHILDREN ELECTED TO THE FUND.

Sir J. T. D. Llewelyn, proposed the election by resolution of the twenty-four candidates whose names were before the meeting, and remarked that although there would then be 97 orphans upon the Fund, he believed they would be quite justified in doing this gracious act. This was carried unanimously.

ALTERATION OF RULE.

The alteration of Rule XIII., in the manner suggested in the report, was then proposed by the Chairman, who gave some very practical reasons for the change, and

Sir J. T. D. Llewelyn seconded this. In doing so most heartily, he appealed for a wider, broader basis of support for the Fund, as would be the case were there more annual subscribers. At present, the receipts from the annual dinner were excessively disproportionate to the receipts from annual subscriptions. The alteration to the rule was carried unanimously.

THE FRIENDLY DINNER.

Mr. Harry J. Veitch presided in the evening at the friendly dinner of the Committee and friends, the Vice-chairs being taken by Messrs. J. F. McLeod and Brian Wynne. Mr. Veitch was reminiscent, and said that he well remembered going to ask the late Sir Julian Goldsmid to become their first President, and that benevolent gentleman replying:—"Yes, I am already president of thirty-nine societies; I suppose another will not kill me." Since then, said Mr. Veitch, their distributions to orphans and the investments amounted to the sum of £21,000, being an average of about £1,350 per year. But there was a falling off in annual subscriptions, when there should be a gain. He had that day read a letter in the *Gardeners' Chronicle* upon that subject. Mr. Veitch concluded by making an earnest appeal for a greater measure of support from those who can afford to help, even in the least degree, reminding those present of the words. "Inasmuch as ye have done it unto one of the least of these, my brethren, ye have done it unto me."

LINNEAN.

PROFESSOR S. H. VINES, F.R.S., President, in the Chair.

Referring to an exhibition on December 4, 1902, by Rev. John Gerard, of a monstrous form of Geum rivale, Mr. B. Daydon Jackson exhibited specimens in further illustration of median prolification, from the herbarium of Sir James Edward Smith, and the British collection in the possession of the Society. He also stated that the prolified form was mentioned by C. Merrett, in his *Pinax*, 1667, p. 22, as occurring "at Brearcliff, in a wood of Mr. Brearcliff, below his house"; and by John Ray, in his *Synopsis*, 1690, p. 89, as "Caryophyllatam flore amplo purpureo quadruplici aut quintuplici serie petalorum observavit D. Lawson prope Strickland magnum in Com. Westmorland." This locality is mentioned by J. Petiver in his *English Plants*, tab. 40, fig. 4, in 1711, when figuring the plant as "Childing Avens." Later authors, as Relhan in his *Flora Cantabrigiensis*, 1785, p. 200; ed. 3, 1820, p. 207; and Withering's *Arrangement*, ed. 2, 1787, p. 538; ed. 3, 1796, vol. ii., p. 478, refer to this form; the latter author also states that "when cultivated in a dry soil, the flowers are apt to become double or proliferous," *op. cit.* p. 478 [see Masters, *Vegetable Teratology*, p. 122].

Mr. C. H. Wright, A.L.S., on behalf of Sir W. T. Thiselton-Dyer, K.C.M.G., exhibited amphicarpic fruit in specimens of (1) Cardamine chenopodifolia, Pers.; (2) Trifolium polymorphum, Poir.; and (3) Vicia amphicarpa, Dorth.

Mr. H. E. H. Smedley, F.L.S., exhibited twelve wax models of longitudinal and transverse sections of the following seeds:—Stephanospermum akenioides, Pachytesta from the French Permo-Carboniferous Formation, Lagenostoma from the English Coal-Measures, with the recent Torreya and Zamia, in illustration of Professor Oliver's paper.

Prof. F. W. Oliver, D.Sc., read a paper "On Stephanospermum, Brongniart, a genus of fossil Gymnospermous seeds," which was illustrated by lantern-slides, drawings on the blackboard, and the models prepared by Mr. Smedley. The communication was restricted to a consideration of two seeds from the Stephanian of Grande Croix, respectively Stephanospermum akenioides, Brongn., and a new seed which the author proposes to name S. caryoides. Special attention was drawn to the pollen-grains found in the pollen-chambers of these two seeds, which were described at length, and a few grains of unknown pollen were shown to occur occasionally. The complexity of these seeds as compared with those of recent Cycads and other Gymnosperms was pointed out, and a hypothetic scheme was shown to demonstrate a possible transition from one type to the other.

SCOTTISH HORTICULTURAL ASSOCIATION.

WE offer our readers a few extracts from Mr. McHattie's address, given at the first meeting for the session of the above body of gardeners on the 3rd inst., at No. 5, St. Andrew Square Edinburgh:—

"Undoubtedly during the past fifty years great economic improvements have taken place in our methods for the production of fruits, flowers, and vegetables. The study of fruit culture requires the utmost attention of the gardener. Soil, situation, pruning, propagation, selection of suitable sorts, diseases, and feeding, all require to be thoroughly understood and mastered before anything like success can be expected.

"The pomological world is much indebted to Knight, Braddick, Rivers, and Hogg, for their unwearied efforts to raise fruits suitable to grow in our native land. Out of season, and in season, there is a greater demand growing for fruit. With the aid of glass and ingenuity, we have so to speak improved our climate, and where possible, we endeavour to be equal to the great demand for these wholesome productions.

"I do not intend to say anything in regard to the kitchen garden, further than to draw your attention to the importance of studying the management and the nature of different soils for their improvement. A change of crops is founded on acknowledged facts that each sort of plant draws a nourishment peculiar to itself, therefore the young gardener should know the more important constituents of vegetables, if he is to hold his own.

"The ever-increasing demand for choice plants and flowers has quite revolutionised our methods. Efficiency and economy in production are, to my mind, the most powerful considerations, and should be practised and improved on by every opportunity.

LANDSCAPE GARDENING.

"There is less improvement in this branch of gardening than many seem to suppose. Why is this so? Because there is no fellowship with Nature. There is too much presumption and bad taste, founded upon ignorance of what a true garden ought to be. I do not intend to condemn one style or praise another. Much depends on the scenery of the district, the site of the estate, and the climate. Refinement and good taste are clearly apparent in the charming old gardens scattered over the length and breadth of our land.

"I feel certain the present generation of gardeners have more ample material at their disposal in hardy trees, shrubs, plants, roots, and bulbs, for the embellishment of the gardens, than had our forefathers. And I appeal to our young friends here to master this important subject.

"The gardener's prospects are distinctly good in all branches. In the onward march of progress you find the gardener in the front rank:—

'Let us then be up and doing
With a heart for any fate;
Still achieving, still pursuing,
Learn to labour and to wait.'

"Great is the effect of the discoveries of modern science and horticultural practice. Much of this advancement has been brought about by numbers of distinguished gardeners, and by the efforts of associations like this. Not by the fostering care of Parliament, although I hope to see the day when the science of Horticulture is taught in our public schools. No matter what are the surroundings, Nature will always continue to retain a strong claim on the affections of mankind.

"Gardeners have in the past by intelligence, forethought, and persistent industry, left us much material for our edification. To the young men here I would say make yourself acquainted with the gardening of the world, form some definite aim, and see that you carry it out. What has been said of the British gardener is true, viz., that he is the best. See you to it, that by your broad knowledge of your profession and general affairs, this high reputation is maintained, no matter what the difficulties are.

"It must be remembered that most employers are clear headed, well educated business people, and in nineteen cases out of twenty only a good all-round man will please them for any length of time.

"There is nothing for which self-knowledge is more indispensable in practical life than to enable a man to steer a straight course between two extremes, and to discern clearly the boundary line between right and wrong.

"It admits of no question that the first duty of everyone is to endeavour to raise himself above the level of daily cares, and plant himself in a position where he can face the present, and look forward to the future. The man who fails in this is himself a failure; while the man who by his industry and energy supports his home in comfort and respectability, according to his station in life, although fortune may not have placed him in a position of responsibility, yet he has tasted the truest pleasure of mortal existence. A brain trained to respond to the calls of duty soon does so with ease, just as the muscles of the blacksmith's arm, or of the legs of the racehorse, acquire strength and vigour by persistent exercise. Never permit brain or limb to become weakened by self-indulgence. Take the simplest case of a young journeyman gardener, with health, and a knowledge of his trade, or even without the latter, with good thews and sinews, he is the most free and independent of mortals, particularly on one condition, that he has saved, say £12. Then he is a free agent in disposing of his labour, without which he cannot move from place to place. He must accept the wages offered or starve. Gentlemen, is it not peculiarly important for the young to set about correctiug bad habits, and forming good ones, while the faculties are fresh, and the brain supple?

"And I am proud of the position we have held for so many years in matters horticultural. I need not point out that by improving the article in fitness of things we raise its market value."

REDHILL AND REIGATE DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

FEBRUARY 3.—This Society held its fortnightly meeting at the Public Hall, Redhill, on the above date, the President, J. Coleman, Esq., J.P., D.C., in the Chair.

The Chairman introduced the lecturer, Mr. Kromer, of Roraima Nursery, West Croydon, to give his lecture, "An Orchid Collector's Travels through British Guiana to Brazil."

Mr. Kromer ably dealt with his subject, which was illustrated by lantern-slides. A brief history of Cattleya Lawrenceana was given, and during his travels he mentioned a great many different species of Orchids that were to be found growing—now some were found on the margin of dense forest, and even these were not to be found a few yards inside these forests, showing clearly they require light and air; others growing on rocks beside waterfalls. The lecturer gave an interesting account of his travels up the Massaruni River, and then the ascent of the Roraima mountain, some 8,000 ft. above the level of the sea.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

FEBRUARY 3.—An instructive lecture was given on "Peaches" by Mr. Alderman on the above date, which touched on all the most essential points in the cultivation of Peaches. The lecture was most interesting, and was attentively followed by those present. The next paper will be one on the subject of 'Garden Root Crops," by Mr. T. Bunyard, on Tuesday, February 17.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 5.—There was on this occasion a good display of plants. S. GRATRIX, Esq., showed a small, but choice collection of plants including Dendrobium × Apollo var. alba, in good form, which has previously been certificated here; Odontoglossum crispum var. "West Point," received an Award of Merit. It is one of the symmetrical, large circular type, destitute of markings; Odontoglossum × Harro-crispum "West Point var.," was not sufficiently developed for the Committee to adjudicate upon it, the plant will, however, be shown again; Cypripedium × Rex, a flower of gigantic proportions and believed to be a cross between C. Harrisianum and C. villosum, received an Award of Merit. The group was awarded a Bronze Medal.

Mrs. GRATRIX exhibited a nice plant of Lælio-Cattleya × luminosa.

Messrs. T. SANDER & SONS, St. Albans, received an Award of Merit for Lælio-Cattleya × Bletchleyensis var. excellens, a fine bold flower having a very richly coloured lip.

Mr. W. HOLMES, Timperley, received an Award of Merit for Cattleya Trianæ var. "Our Queen," a flower of very good form with fine petals and sepals, and a richly coloured lip.

Mr. JOHN ROBSON, Altrincham, sent two Odontoglossums, a good form of O. Adrianæ and O. Harryanocrispum.

A. J. KEELING & SONS, Westgate Hill, near Bradford staged Cypripedium × Pollettianum and C. × Charlesianum.

JAS. CYPHER & SONS, Cheltenham, staged a nice bright group of plants consisting of various good Dendrobes, D. × Leechianum var. giganteum and D. × Ainsworthi, Cypher's var., receiving Awards of Merit. Some well flowered plants of Sophronitis grandiflora, were also in this group (Silver Medal).

Mrs. R. TUNSTILL, Burnley, received a First-class Certificate for a magnificent hybrid Cypripedium called C. × Priam, whose parents are C. insigne var. Chantini × C. Niobe var. superba. It is a handsome addition to our garden hybrids, and is said to be a unique plant.

JOHN COWAN & Co., staged a group of Lycaste Skinneri, in which were several distinct and interesting forms (Bronze Medal). Stanhopea Amesiana, received a First-class Certificate.

O. O. WRIGLEY, Esq., received a Silver Medal for a good group of Cypripediums.

Messrs. CHARLESWORTH & Co., Bradford, received a Bronze Medal for a small group of choice plants. Cattleya × Adonis, a handsome cross between C. Mossiæ × C. gigas the flower showing the characteristics of the two parents (First-class Certificate). Cypripedium × resplendens (Cleopatra × Lawrenceana) received an Award of Merit. *P. W.*

CARDIFF AND DISTRICT CHRYSANTHEMUM.

FEBRUARY 6.—On the foregoing date a large number of members and friends of this Society met at the Grand Hotel, Cardiff, to receive the report and statement of accounts for the working of the Society for the

past twelve months. The chair was occupied by Mr. Councillor J. W. Courtis. The accounts show a small deficit, which was accounted for by the bad weather on each of the two days the show was held; notwithstanding this, there is every prospect of the Society still flourishing, as it was announced by a gentleman present that he had been able to provide three Challenge Cups for competition—one of 10 guineas for the open classes, one of 5 guineas for the amateur section, and one of 5 guineas for the cottagers, who, as a rule, show some marvellous exhibits.

The next show will be held on November 4 and 5. The usual vote of thanks terminated a very pleasant meeting.

CHELTENHAM MARKET GARDENERS.

FEBRUARY 6.—The first annual dinner of the members of the Cheltenham Market Gardeners' Association was held at the Lamb Hotel, Cheltenham, on the above date, and it proved a most successful gathering. The chair was occupied by the Mayor (Col. Rogers). Mr. Bence had the honour of proposing the toast of the evening: "Success to the Cheltenham Market Gardeners' Association."

SOUTHAMPTON ROYAL HORTICULTURAL.

FEBRUARY 6.—There was a good attendance of members of the Royal Horticultural Society of Southampton at the meeting which was held on the above date in the Mayor's Parlour in the Municipal Offices. The Mayor (Councillor H. I. Sanders) presided.

Councillor Blakeway moved the adoption of the report, a summary of which has appeared, and the balance-sheet, urging that as Southampton progressed, the Society should also go ahead, and he made a strong appeal to get another 100 subscribers, which would improve the financial position of the Society, and relieve the Council of anxiety, while it would enable them to make their annual shows, as described by judges, second to none in England.

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

FEBRUARY 9.—The fortnightly meeting of the above was held in the Club Room on the foregoing date, Mr J. T. Powell presiding over a large attendance of members. The subject for the evening was "Melon Culture: Right and Wrong Methods," and was introduced by Mr. W. Iggulden, of Frome.

The exhibits included some flowers of Rhododendron Veitchi, by Mr. A. F. Bailey, gr. at Leopold House, Reading. Eight new members were elected.

THE HORTICULTURAL CLUB.

FEBRUARY 10.—The annual meeting of the members of this Club was held at the Hotel Windsor on the above date, under the presidency of Sir J. T. D. Llewelyn, Bart.

The report of the committee showed that the Club had made very substantial progress during the year, no fewer than fifty-four new members having been elected, demonstrating that the policy of reducing the subscription to a guinea had borne good fruits in the direction of numerical strength, while the names of the newly elected members demonstrated equally clearly that the status of the Club was fully maintained. Allusion was made to the valuable papers and interesting exhibits which had been read and given by Mr. Arderne on "Cape Gardening," and Mr. Stevens in the direction of splendid photography; and it was abundantly obvious that the Club's claim to be not only the recognised social centre of the horticultural cult, but also an active contributor to horticultural progress, was fully substantiated. Financially the Club maintains its footing, despite the reduced subscription, the new membership, even in the first year, having practically restored the equilibrium of income and expenditure.

After the business meeting, a dinner was held, at which some eighty members and guests attended, including a good number of ladies, though not so many as the Club would have liked to have seen. A capital programme, vocal and recitative, arranged by Mr. E. T. Cook, the secretary of the Club, was interspersed with the usual loyal and appropriate toasts.

Sir John T. D. Llewelyn, who presided at the dinner, in proposing the toast of the Club, pointed out with great force the value of such a cult to business men, who there found precisely the recreation, at once natural, elevating, and inexhaustible, which was best adapted to fill their leisure and distract their minds from the arduous strain of business worries.

Among the visitors was Mr. H. E. V. Pickstone, from the Cape, where he formerly had the control of Mr. Cecil Rhodes' fruit enterprises; and the Club is to be congratulated on the fact that this gentleman has kindly consented to give a paper on "Commercial Fruit-growing in South Africa" at the March meeting of the Club, which will undoubtedly lead to another numerous assemblage of the members, and an interesting and instructive discussion. The Club in this way is doing good and sterling work, and it is greatly to be hoped, in the interest of horticulture, that its recent rapid progress will be well maintained in the future, since the really nominal subscription is so well repaid by the character of its reunions.

THE NATIONAL DAHLIA.

FEBRUARY 10.—A largely attended meeting of the Committee of this Society was held in the rooms of the Horticultural Club on the above date, Mr. E. Mawley presiding. The first business was the selection of patterns of cups or vases which, under Mr. Tulloch's active labours have been provided for competition at the Society's annual show at the Drill Hall, in September next. Some handsome samples were sent for inspection. The committee then dealt with the important question as to the holding of a provincial show at Manchester in the autumn, and letters from that town were read. The Botanical Society, which is desirous of holding an autumn Fruit and Dahlia Show, offered a good sum as prize-money for Dahlias; and from other sources £10 were promised. The committee, in a whip round, promised another £10, and as the value of the prizes offered would be £51 10s., it is hoped that some Manchester people will find the rest. The show is to be held as that of the National Dahlia Society, the committee furnishing the schedule and the judges, whilst the Botanical Society will undertake the advertising. A desire was expressed that the show take place on September 11 and 12, if suitable locally. Dahlias now, besides having two special exhibitions allotted them in London, are catered largely for at all the leading autumn provincial shows, but the Manchester show will be the first provincial show yet held under the auspices of the National Dahlia Society. The chairman strongly urged the members of the trade present to send good garden varieties of Cactus Dahlias to Chiswick for the trial there this year. It was important that the lover of these garden flowers should be catered for as much as the exhibition grower. Mr. A. Dean said his customary prize at the show of 10s. 6d. would this year be offered for the best decorative variety of the Cactus section grown at Chiswick, the prize to be awarded by the committee of inspection.

EALING HORTICULTURAL.

FEBRUARY 13.—At the annual meeting of this Society, a somewhat lugubrious report was presented by the Committee, which went to show that on the occasion of the annual exhibition in July last, which was held at Gunnersbury Park, the weather was very wet, and the loss great, not only sweeping away the balance in hand, but compelling them to enter upon another year with a serious deficit. It was resolved that the committee should take means to bring the claims of the Society before the inhabitants, who have greatly increased during the past few years. The annual exhibition was fixed for July 8, and will take place in the Walpole Public Park, which is near the centre of the town. The committee will determine as to whether a Chrysanthemum show shall also be held. Mr. Leopold de Rothschild was re-elected president.

NATIONAL CHRYSANTHEMUM.

FEBRUARY 16.—The newly-elected executive committee met at the Albert Hotel, Victoria Street, S.W., on the above date. The Secretary called attention to the fact that Mr. H. E. English, who was elected a member of the executive committee at the recent annual meeting was not a member of the Society according to the rules, though a delegate from an affiliated society. Mr. English was declared disqualified, and the highest on the poll of the unsuccessful candidates declared duly elected, namely, Mr. S. B. Linford. A letter was read from Mr. C. E. Shea accepting the post of President, in the place of Sir A. K. Rollit, M.P., resigned. A letter from Messrs. Mackenzie & Moncur, horticultural engineers, London and Edinburgh, was read, offering plate to the value of £10 as a special prize at the November show of the society, which was accepted.

The Secretary presented an interim financial statement showing a balance in hand of £37 8s. 8d., with but a few small outstanding liabilities. It was resolved that the payment to the Secretary for his services in 1903 should be the same as last year.

An offer was accepted from the authorities of Essex Hall, Strand, for three meetings of the Floral Committee to be held there in 1903, viz., on September 21, October 26, and November 23. Meetings will also be held at the Crystal Palace on the first days of the October, November, and December shows. The annual outing was fixed for Monday, July 13, probably to Park Place, Henley-on-Thames.

Of the six outgoing members of the Floral Committee, Messrs. Brookes, Davis, Seabrook, and Turk were re-elected, with the addition of Messrs. C. Black and J. C. Riding. The schedule revision and finance sub-committees were re-elected, with slight modifications; also the classification committee, and the board of arbitration was extended to include the whole of the executive committee.

Considerable discussion took place on the financial condition of the Society, and its ability to carry out three exhibitions at the Crystal Palace. Eventually a resolution was passed to the effect that the finance committee bring up to the next meeting of the executive committee an estimate of the probable income and expenditure for the present year. Five new members were elected.

CHINA.

SHANGHAI.

ONE of the first things Mr. Arthur [Superintendent of the Public Gardens, Shanghai, and an old Kewite], did was to study the nature of indigenous trees in order to find out which are best adapted for foliage trees. The best of the lot was the Pterocarya stenoptera, or Ash, as it is often mistakenly called, and after that the Stillingia sebifera, or Tallow-tree, the Sophora, Melia japonica, and the Ginkgo biloba. The Sterculia was largely used as a shade tree, being mistaken by many for a Plane-tree, but owing to the softness of the wood it is not a suitable tree to plant. All the Planes now growing here have been imported from Europe, or raised from the seed of the imported trees, and luckily proves to be one of the best of trees for shade. The hardy Pterocarya is also a favourite, and how useful it is for the purpose required is practically demonstrated in Range Road, which has recently been planted with it, and already the saplings have developed into sturdy well-grown shade trees. The Ginkgo biloba is another that has proved well worthy of special cultivation. The seeds, after careful preparation, are sown in the nurseries, and obtain a height of about 6 or 8 inches the first year. These seedlings are planted out in beds in the second year a foot apart, and their growth is rapid, so that they are sturdy saplings when again transplanted the third year. Greater space is allowed each sapling during this third year, and pruning is resorted to, which improves the appearance and sturdy growth of the now tall saplings, which are ready when the third year is passed for transference to the roads, and in a very short time they form handsome and useful shade trees.

There are certain indigenous trees that are also being cultivated in large quantities to give variety to the roads, as they all form good shade trees, and these are the Tallow-tree, Stillingia sebifera; the only variety of Elm to be found in this part of China, Ulmus parvifolia, the Sophora, and the Acacia, and the results have proved very satisfactory, so that Mr. Arthur has not only a reserve of shade trees to draw upon ample in quantity, but he can supply a great and pleasing variety.

Mr. Arthur is making experiments with the culture of many species of Japanese trees and shrubs for roads and gardens. A very handsome Japanese tree that is receiving Mr. Arthur's attention is the Paulownia imperialis. This tree is largely cultivated in Japan, because its wood is excellent for making native wooden clogs; but it also forms a very handsome shade tree, and is beautiful in the early summer, when its handsome lilac-coloured racemes are in bloom. Other Japanese shade trees that repay attention in cultivation are the Maple (Acer varieties), Flowering Cherry (Prunus, pseudo-cerasus), Melia japonica, Magnolia speciosa, and varieties of the Oak and Chestnut.

Some very interesting experiments are also being made with well known trees from England, and in the municipal nurseries can now be seen saplings of various sorts. Experience will prove which are best adapted to this climate, so that when use is actually made of them it will be with a reasonable prospect of a good result.

Mr. Arthur has also gone in extensively for the cultivation of ornamental shrubs with a view to improve the appearence of our gardens, cemeteries, &c.; and as a large variety can be easily obtained in Japan, Mr. Arthur has lost no time in experimenting with a view to a survival of the fittest, and therefore there are in the municipal nurseries already a large stock of foliage and

flowering shrubs, prominently amongst which may be seen Lagerstroemia, Camellia, Spiræa japonica, Hydrangea, Ilex latifolium, Juniper, Taxus, Hibiscus, Maple, and many of the handsome variegated Conifers for which Japan is celebrated. There also may be found the indigenous Privet, Ligustrum lucidum, used for hedges; and the Citrus, or wild Lemon, which forms such useful and handsome hedges in Japan. *The N. C. Herald and S. C. and C. Gazette.*

Obituary.

J. HENRY BYVOET. — We learn with great regret of the death on the 15th inst., of this gentleman, at Overveen, near Haarlem. Mr. Byvoet, who died at the age of 70, was the head of the firm of the Gebroeder Byvoet, and was held in the highest respect and esteem by his friends and acquaintances in this country.

CHARLES PENNY. — We regret to have to announce the death, on the 12th inst., of this gentleman, in his seventy-seventh year. He was for some time in the employ of Mr. A. Gibbs, Regent's Park, and was subsequently entrusted with the management of the gardens of the then Prince of Wales at Sandringham. Mr. Penny will be remembered as one of the first to propose in our columns the formation of the Gardeners' Orphan Fund, in commemoration of the first jubilee of her late Majesty Queen Victoria.

TRADE NOTICE.

WE are informed by Mr. A. A. Fabius, Redlands Nursery, Emsworth, Hants, that he has taken into partnership Mr. F. W. Miller, and the firm will in future be known as the Redlands Nursery Company.

ANSWERS TO CORRESPONDENTS.

APPLE SHOOTS: *H. Barclay.* A bad case of canker. Cut out the affected parts, or remove entirely cankered fruit-spurs and the worst affected shoots. If the knife be used, cut down to live healthy tissue and cover with grafting clay or thin sheet lead. If the trees are young, replant them on to a well-drained piece of land, keeping the roots near the surface, and prevent them getting deep by placing a bed of coal-ashes stamped firmly, or concrete about 5 feet square under each tree at 2 feet below the surface of the land.

BLACK SPOTS ON CUCUMBER-LEAVES: *F. W. M.* The appearance remarked on the leaves are the spores of a species of Pilobolus, a dung fungus, which are emitted with some degree of force from the spore cases, but do no harm.

BOOKS: *Manual on the Cultivation of Pansies.*—*R. B.* Mr. House, Coombe Nurseries, Westbury-on-Trym, Bristol, publishes one. The different varieties may be obtained of any nurseryman dealing in hardy plants.—*A. H. and others.* A correspondent kindly informs us that a book dealing with *Table Decorations*, by W. Lowe, is published by Messrs. Chapman & Hall, Ltd., London. The price of the book we do not know.

CHRYSANTHEMUMS: *Novice.* The varieties you mention should afford good results if cultivated as you describe.

CINERARIA PLANTS DYING OFF: *Puzzled.* There are neither insects nor fungus on the specimen sent, and its death is doubtless brought about by some error in cultivation—perhaps affording very cold water, or pouring water always against the stem.

CORRECTION: The names of the members attending the Floral and the Fruit Committees respectively, were accidentally transposed in our last issue.

CUCUMBER-RAISING: *Market Grower.* The general practice is to sow the seeds in moderately moist soil, making the soil firm beneath the seeds, but loose above them, and to afford no water at that time. It is the danger of the seed rotting which induces the gardener to afford no water till germination has taken place. That is under hotbed treatment; still, seeing that success attends the contrary practice in your case, and the seed-boxes stand over hot-water pipes, you have no necessity to alter your practice. To prevent drawing, it is necessary in the early winter and spring, when sunlight is not abundant, and the admission of fresh air is attended with difficulty, to keep the plants near the glass, whether the plants are raised and grown in hotbeds or over hot-water pipes; and soon after germination, to place them on shelves, hanging or other, placed within a foot of the glass in a warm house. Doubtless plants raised in warmth of 65° answer the purpose, but progress would be greater if bottom-heat of 80° and top-heat of 70° were applied, and the plants kept therein till they have reached a height of 12 to 15 inches. If intended to fruit on the surface of a bed of soil, the plants should be stopped at the first pair of rough leaves, not otherwise.

DOUBLE-SPATHED RICHARDIA: *A. M., Scone Palace.* A very common condition in the white species, and there is no reason why it should not become so in the yellow ones, when they have been longer in cultivation. As yours is a seedling plant of Richardia Elliottiana, it will be interesting to see if the habit is constant.

EMIGRATING GARDENER: *T. H.* In consideration of the delicate health of your wife, South Australia, Tasmania, or New Zealand are the better colonies. They are rich in promise for market gardening, fruit-growing, dairying, and sheep-farming; and employment is well remunerated if the emigrant is competent to carry out in a workmanlike manner that which he undertakes to do. You might with advantage advertise in the columns of this or colonial journals.

GRAFTING THE CHERRY ON AN OLIVE: *J. N.* We do not believe that success would attend the attempt.

GRUB: *H. Barclay.* The insect does no harm to living roots, &c., but subsists on decaying matter.

JOURNEYMAN GARDENER LIVING IN A BOTHY: *C. B.* In the absence of any agreement the gardener is in law, assumed to be a domestic, and before he can quit his employment, except in the case of gross dereliction of duty, he must give or receive a month's notice.

MANURES FOR THE TOMATO PLANT: *W. J. D.* We intend to publish an article upon the subject in an early issue of the *Gardeners' Chronicle.*

NAMES OF FRUIT: *S. S. S.* 1, Hambling's Seedling; 2, Royal Russet; 3, not recognised; 4, forward to the Fruit Committee of R. H. S. next year; 5, very nice appearance and good flavour. It would be wise to forward this also to the Committee; 6, Claygate Pearmain.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Devon.* 1, Pseudotsuga Douglasii; 2, Sequoia sempervirens; 3, Retinospora squarrosa; 4, perhaps Hypericum, send when in flower; 5, Ribes fuchsioides; 6, Polygonum complexum.—*Land.* 1, Carex paludosa; 2, Myriophyllum spicatum; 3, Radiola Millegrana; 4, Filago germanica; 5, Spergula arventis.—*J. W. R.* Thank you for the fine specimens you send. We believe the cones are as follows: 1, Pinus Montezumæ; 2, 4, 6, forms of P. ponderosa; 3 and 5, P. Jeffreyi. All these species are extremely variable.—*W. H. S.* The cut may be intended to represent some species of Galium, but your question is apparently not of a horticultural character.—*J. S. B.* 1, Iris histrioides; 2, Rhododendron, an early-flowering variety, perhaps "Early Gem;" 3, Hedera Rœgneriana; 4, H. helix var. conglomerata; 5, Piptanthus nepalensis; 6, Rhododendron hirsutun.—*Reader.* Cornus mas, Cornelian Cherry.—*G. H. S.* Petasites fragrans, white variety.—*H. T.* 1, Berberis Mahonia; 2, Berberis Darwini; 3, Berberis Wallichi; 4, Berberis stenophylla, a hybrid; 5, Berberis buxifolia; 6, Berberis Bealei.—*J. P. Croydon.* Cœlogyne lactea.—*H. H.* Cypripedium insigne, and Clivia miniata, often called Imantophyllum miniatum. It is a Natal plant, and will grow well in the dwelling house, conservatory, or greenhouse.—*A. Y. L.* Odontoglossum odoratum.—*T. T.* 1, Adiantum cuneatum grandiceps; 2, Adiantum cuneatum Pacottii; 3, Adiantum Waltoni diffusum; 4, Adiantum cuneatum variety; 5, Adiantum cuneatum; 6, Adiantum capillus-veneris; 7, Adiantum pubescens.—*B. G.* 1, Anthericum lineare variegatum; 2, Ophiopogon Jaburan variegatum; 3, Eranthemum variegatum; 4, Streptosolen Jamesoni; 5, Sparmannia africana; 6, Peperomia arifolia; 7, Lithospermum prostratum.

PALM-LEAVES DESTROYED: *H. J.* and *A. H.* The application of XL-All has been of too great a strength. There are no traces of insects, and no fungus is present.

PRUNUS MYROBALANA AND "QUICK": *Reader.* The growth of the former is the more robust, but less dense, until repeatedly pruned with the shears, than "Quick" (Whitethorn). It forms a safer fence against horned etock.

ROYAL GARDENERS' ORPHAN FUND: *F. B., Ipswich.* The sum of 6s. has been forwarded to the secretary.

SULPHATE OF AMMONIA AS A MANURE FOR A LAWN, ORCHARD TREES, VEGETABLES, VINES, &c.: *J. H.* Good ammonic sulphate will contain about 20 per cent. of nitrogen, and its action upon plants is immediate if the soil is moist. A suitable quantity for farm crops is from 2½ cwt. to 3 cwt. per acre. It would, therefore, be a useful top dressing for lawns if applied at the end of March in small quantities, and four or five times during the season of growth, and to leafy vegetables, Runner Beans, salads, Leeks, Celery; but less so to Potatos and Jerusalem Artichokes. For fruit-trees and Vines it would be less suitable than nitrate of potash and superphosphate.

TAR-DRESSING FOR MEALY-BUG ON VINES: *Grower.* Mix to the consistency of thick paint, cowdung one-fourth, clay two-fourths, and lime one-fourth, with water, in a bucket of ordinary size, then mix with some hot water half-a-pint of gastar till it is quite liquefied, and add this to the contents of the bucket. Tar has a tendency to float, so that it is very necessary to keep the whole mass well agitated whilst applying the dressing to the Vines. The buds of the Vines must be quite closed, or it will do harm.

THE SHADDOCK (C. DECUMANA): *C. H. W.* The fruit of C. decumana has been known as the Shaddock because the fruit was discovered in China about 200 years ago by Captain Shaddock, and carried by him to the West Indies. The fruits occasionally weigh as much as 20 lb., and are then called Pompoleons; it is only the small fruits that are generally seen in English markets, where they are sometimes called "Forbidden Fruit." The Shaddock needs similar cultivation to that afforded Orange-trees; but it is seldom grown in English gardens.

THUIA OBTUSA: *A Constant Reader.* Cool greenhouse treatment in the winter and summer, or if you have space, and the plant is in a pot, stand it out-of-doors in the summer months. All, or nearly all, pruning should consist of pinching the points of the shoots during growth, and finishing in time to allow a slight growth to be made before winter. The instructions given at p. 80 still hold good.

COMMUNICATIONS RECEIVED. — C. E. W.—W. M. W.—Consul Lehman, Popayan—H. W.—R. H.—L H.—Hans Werdmüller, Waverley, Mass.—H. J. C.—S. M.—M. L. de V.—Sir G. K.—H. J. G.—F. R.—H. Henkel, Darmstadt, with thanks—F. M. B., Brisbane—M. Fierens, Ghent—C. S. S., Boston—M. Duchesne, Brussels—E. M.—H. W.—E. T. C.—Dr. Henry—W. N.—W. C. W.—A de M.—W. W.—J. R. J.—Vilmorin, Andrieux et Cie.—J. R. J.—de B. C.—F. C. L.—J. R. B.—E. F., Ghent—S. W. F.—J. C., kept out for the present from want of space—Subscriber—A. H. K.—W. G.—Société Centrale d'Agriculture, &c., Nice.—H. Baker—A. C.—J. J. C—J. P. H.—E. M.—H. J. C.—W. H. D.—E. J.—A. W.—S. Castle—W. Miller—R. D.—J. O'B.—H. A.—H. M.—E. F. N.—S. A.—G. G.—E. C.—J. W. M.—J. Story—T. C.—P. B., Cape Colony—A. D.—F. Long—S. G.—H. H.—Seeds—W. G.—E. B.—R. C.—E. D.—R. P. B.—H. B. D.—J. S. U.—A. B.—J. C.

(*For Markets and Weather, see p. xiv.*)

View in the Grounds, Belvoir Castle.

THE
Gardeners' Chronicle

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GLASGOW BOTANIC GARDEN: PAST AND PRESENT.

THE Glasgow Botanic Garden has had a somewhat chequered career, and although it has been utilised more or less for two centuries for teaching purposes, it is only within the last few years that anything like a condition of comparative stability has been attained with regard to the collections in the various departments.

The original garden, adjoining the old College in the High Street, was, according to Sir Walter Scott, "laid out in the Dutch taste, with clipped hedges and statues." It was here that Sir Walter laid the scene in which Rob Roy interrupted the combat between Rashleigh and Francis Osbaldistone. The garden, however, has an historical significance, chiefly from the fact that it was here that Dr. (afterwards Sir William) Hooker devoted the early part of his career, and to whom the garden is indebted for a great portion of its early success.

There seems to have been very little interest taken in botany in Glasgow previous to the eighteenth century. The *University Records* show that the science, conjoined with anatomy, was taught in the old College as far back as the year 1718.

In 1717, the Provost of the city disposed of a portion of the north side of the "Doohill" to the Glasgow College for the purpose of forming a garden; but it is certain that a piece of ground, set apart as a botanic garden, for the cultivation of plants illustrative of botany, existed prior to this date.

A few years later, viz., September 29, 1720, there is a minute in the "Records" to the effect that, "A motion in favour of Mr. Andrew Graham that there should be granted to him a diploma creating him a Doctor of Medicine, he having studied for a long time, and particularly that he had studied botany in this University."

It would seem from the following that the College authorities deemed it prudent to exercise a strict supervision over those entitled to admission to the garden :—

> "THE COLLEGE, GLASGOW, Feb. 13, 1721.
>
> "The Faculty, considering that the keys of the Garden-door are now renewed, and that, conform to a former order, none but Masters have got any of them, it may be convenient that the sons of noblemen who are scholars have the use of said keys, with a certain restriction, do therefore allow the said sons of noblemen a key to the Great Garden and Physic Garden, providing the said privileged person, upon receiving the said key from the Principal, promise to allow no other the use of said key, and at the end of every session to re-deliver said key to the Principal."

No detailed account of the old physic garden or of its contents remain. Owing, doubtless, to the rapid extension of manufactories and other buildings in the vicinity of the College at the beginning of the last century, the site of this garden became anything but favourable to the cultivation of plants.

In 1817, Mr. Thomas Hopkirk, of Dalbeth, a distinguished local botanist, with the co-operation of the University and several prominent citizens, succeeded in establishing a public botanic garden at Sandyford, then on the outskirts of the city.

The combination of botany and anatomy was found to be unsuitable, and a separate lectureship was instituted in 1818, Dr. Robert Graham being the first occupant of the Regius Chair. This gentleman took an active part in the formation of the new garden, and gave several courses of lectures within its grounds. In 1820 he was succeeded by Dr., afterwards Sir William Hooker. Owing partly to the energy of the latter, as well as his influence with Glasgow merchants and shippers, contributions began to arrive rapidly from all parts of the world. The number of living species in the garden in 1820 was about 9,000; in 1825 the number had increased to 12,000, while from this time onwards the stock kept steadily increasing.

In 1841 Sir William Hooker, having been appointed Director of the Royal Gardens, Kew, resigned the Glasgow chair, and was succeeded in the same year by Professor J. H. Balfour. About this period it became evident, owing to the rapid extension of the city, that another site must be selected, and in 1841 the garden was again removed westwards to the picturesque situation which it now occupies on the banks of the river Kelvin.

The successive occupants of the chair of botany (Prof. G. Walker-Arnott, appointed 1845; and Prof. Alexander Dickson, appointed 1868), had many financial difficulties to contend with during their respective periods as directors. But that the time from 1841 to 1879 was not quite barren of results is proved by the fact that many new species, including Dracæna Goldieana, Aristolochia Goldicana, and Strophanthus Bullenianus, Mast. (all figured in the *Gardeners' Chronicle*), and others not previously described, were sent to the garden during this period by the late Rev. Mr. Goldie, and other enthusiastic collectors.

The ground originally occupied by the botanic garden consisted of 21 acres, but since the acquisition by the corporation recently of part of the Montgomery Estate, north of the Kelvin, the extent has been increased to 40 acres. The new addition, however, is of the nature of a public park, and is separated from the garden proper by the river Kelvin.

In 1871, Mr. John Kibble, of Coulport, Lochlong, a retired Glasgow merchant, presented to the garden his very beautiful conservatory, which was removed from Lochlong and re-erected on a more extensive scale in the garden by Messrs. James Boyd and Sons, the famous horticultural builders of Paisley. It is constructed entirely of glass and iron. The façade is 150 feet in length, and consists of entrance hall 50 feet wide, terminated on each side by transepts 50 by 28 ft.; while a pond, mainly used for half-hardy aquatic plants, occupies the centre immediately within the entrance door. The "main hall" is 471 feet circumference, the roof being supported by iron pillars connected by spandrils. It was in this building the opening meeting of the British Association took place in 1876. Here also Benjamin Disraeli and William Ewart Gladstone delivered their addresses as Lord Rectors of Glasgow University. It was subsequently turned into a winter-garden. The centre under the dome is completely occupied by a unique and varied collection of, mostly, arborescent Ferns. Conspicuous amongst them are large specimens of Cyathea insignis, C. dealbata, C. medullaris, Dicksonia Smithii, D. Schiedei, D. Barommetz, Marattia cicutæfolia, M. Cooperi, &c., Podocarpus vitiensis, P. chilina, Agathis australis, A. obtusa, Araucaria Rulei, Phyllocladus trichomanoides, and other interesting coniferous plants are successfully cultivated here.

If the fifteen years, ending 1840, were notable in the history of the Glasgow garden, the six years ending 1885, were equally so. Prof. Bayley Balfour was appointed to the Glasgow Chair in 1879, and during his tenure of office the general aspect of the garden was completely changed. It was during his directorship that the Kibble Conservatory, previously used as a concert hall, was transformed into a winter-garden. He also succeeded in procuring funds for the erection of the splendid Teak-wood range of conservatories, so sadly needed at the time; and the herbaceous ground, then under the old Linnæan system, was remodelled and re-arranged in accordance with Bentham & Hooker's *Genera Plantarum* under his supervision. In the carrying out of these important changes, Prof. Balfour had the assistance of Mr. Robert Bullen, the late and estimable Curator. Prof. Balfour left the Glasgow garden splendidly equipped on his appointment to Oxford, and he was succeeded in 1885 by Prof. F. O. Bower, the present occupant of the Regius Chair.

Though inferior in size to Kew, Dublin, or Edinburgh, the Glasgow garden is not proportionately inferior in interest and value. Certain portions of the collection will bear comparison with the best. It is in the open air department that the weak spot is to be found. This weakness is certainly caused by the smoke-contaminated atmosphere, rendering impossible the establishment of a good representative shrubbery or arboretum. Most Conifers refuse to grow at all; others, as Pinus austriaca, P. Strobus, P. sylvestris, and Taxus baccata, have a begrimed appearance; while all deciduous trees suffer more or less. Notwithstanding these drawbacks, every recognised branch of out-door botanic gardening is adequately represented at Glasgow, including the herbaceous ground, rock-garden, bog-garden, and water-garden.

C. Sherry.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM × J. BARTELS.

A FINE flower of this showy, though rather narrowly-constructed cross between C. callosum and C. Boxalli is sent by Mr. H. C. Corlett, gr. to Holbrook Gaskell, Esq., Woolton Wood, Liverpool, who has raised it from seed. The large, reflexed-edged dorsal sepal is blackish-purple, changing to bright dark rose colour as it approaches the white margin. The petals and lip are yellowish, the former being tinged with purple on the upper half, and the latter similarly tinged on the face. It was first shown by Messrs. Sander & Sons at the Royal Horticultural Society, November, 1894. The flower is specially interesting, for it is identical with two sent a little time ago by M. Otto Beyrodt of Marienfelde, Berlin, which were said to have been taken from plants received with a batch of freshly imported C. callosum.

BULBOPHYLLUM OCCULTUM.

A fine specimen of this singular Mauritian species is in flower in the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood). The plant has stout flower-spikes, bearing triangular racemes of flowers almost hidden by large imbricating bracts, giving to the inflorescence the appearance of a head of corn. The bracts are arranged in three rows, with the rather pretty whitish, purple-stained flowers just peeping out from beneath them. Bulbophyllum rufinum and a few other singular "botanical" Orchids are in bloom; also, in addition to a good display of the showier species, among which the Odontoglossums are especially vigorous.

CYPRIPEDIUM × PRIAM.

The fine results to be obtained by intercrossing the crosses of Cypripedium Fairieanum, was well demonstrated in the beautiful C. × Minos, Young's variety, for which R. Briggs-Bury, Esq., secured an Award of Merit, at the Royal Horticultural Society's meeting, on February 10; and now, an equally good example is sent by Mrs. Tunstill, Monkholme, Brierfield, Burnley (gr., Mr. W. Balmforth), the flower being of C. × Priam (Niobe × insigne Chantini). It was raised by Messrs. Jas. Veitch & Sons, who obtained a First-class Certificate for it when shown at the meeting on November 20, 1900, and it is said that only this one appeared. It was purchased by the late Robert Tunstill, and secured a First-class Certificate at Manchester, on February 5. It is a fine companion to C. × Minos, Young's variety, its large white dorsal sepal being beautifully marked with bright purple. The petals and lip have a yellow ground colour, finely marked with bronzy-purple.

CYPRIPEDIUM × JUNO.

Although this extremely pretty cross between C. Fairieanum and C. callosum was awarded a First-class Certificate when shown by its raiser, Drewett O. Drewett, Esq., at the Royal Horticultural Society's meeting on February 9, 1892, it is still a rare plant, seldom seen in flower. In the collection of Francis Wellesley, Esq., Westfield, Woking (gr., Mr. Gilbert), a special feature is made of all the C. Fairieanum crosses, both direct and secondary, and at the present time some of them are in bloom; but the flower of C. × Juno—two on a scape—has a fine dorsal sepal, flushed and lined with carmine-rose, and veined with purple, making it most attractive. The petals and lip are tinged and marked with a dark purplish tint, and the entire flower is very distinct, notwithstanding that a large number of hybrids have already flowered. Of these crosses, C. × Baron Schroder and C. × Minos, Young's var., are regarded as two of the showiest.

CYPRIPEDIUM × MINNIE.

By an error in the record of the parentage, this distinct hybrid was given an Award of Merit on January 17 as C. × Samuel Gratrix var. Miunie. The fact, afterwards disclosed, that it did not resemble C. × Samuel Gratrix, caused the committee to alter the name to C. × Minnie (parentage unrecorded). It was shown by its possessor, Francis Wellesley, Esq., Westfield, Woking (gr., Mr. Gilbert). It is a fine flower, with a large pure white dorsal sepal, the lower two-thirds of which possesses evenly-distributed lines of rose-purple spots. The lip and petals are yellow, tinged and veined with dark purple. A large number of varieties of C. × Euryades, C. × Leonidas, and others of the same section, are now in bloom in Mr. Wellesley's collection, but among them there is none that indicates the parentage of C. × Minnie. *J. O'B.*

NURSERY NOTES.

MESSRS. V. N. GAUNTLETT AND CO., REDRUTH.

WHEN in Cornwall, during the month of January, I paid a visit to Messrs. V. N. Gauntlett & Co.'s nursery at Redruth, and, though the season of the year was far from being a favourable one to view open-air plants in any portion of England, I saw enough to assure me that during the spring and summer months a walk round the grounds would prove a treat to any lover of the rarer flowering shrubs. The genial atmospheric conditions which exist in Cornwall render that county particularly adapted for the growth in the open air of subjects whose culture is not possible except under glass shelter, throughout the greater part of England. The owners of good gardens being aware of that fact, and being, fortunately, for the most part, enthusiastic gardeners themselves, one is able, in making a tour of Cornish gardens, to see many rare and beautiful greenhouse shrubs and plants enjoying perfect health in the open grounds. Messrs. Gauntlett have especially laid themselves out to supply the wants of those who are desirous of attempting the culture of rare and tender shrubs in the open, and their collection is an interesting and varied one. Their assortment of Bamboo embraces sixty-three species, some of which, such as Arundinaria nobilis and Phyllostachys mitis, are difficult to obtain true to name. Of the rarer species of Rhododendrons, Falconeri, Griffithianum (better known as Aucklandi), Thompsoni, barbatum, argenteum (grande), and others, are well represented, large plants in tubs being available for such as wish for immediate effect. Of the general collection of shrubs, the following were noteworthy: Andromeda (Zenobia) cassinæfolia, A. nitida, Asimina triloba, Banksia quercifolia, and others, the climbing Berchemia racemosa variegata, Buddleia Colvillei, B. insignis, B. japonica, and B. variabilis; Clerodendron trichotomum, of which there are several fine examples in the south-west, the yellow-flowered, sharply-thorned Cæsalpinia japonica; the queen of Camellias, C. reticulata; Corokia buddleoides, Crinodendron Hookeri (Tricuspidaria hexapetala), Caryopteris Mastacanthus, and its white variety; Carpenteria californica, a common shrub in the south of Devon and Cornwall; Daphniphyllum glaucescens, a specimen of which in the neighbourhood of Penzance has attained a height of 12 feet, and a spread of 22 feet; Desfontainea spinosa, D. Hookeri; the ivory-blossomed Drimys Winteri, Edwardsia (Sophora) grandiflora, E. microphylla, the brilliant-flowered Embothrium coccineum, whose vermilion bloom-clusters glow in many a Cornish garden in the spring of the year; the Persimmon (Diospyros Kaki), the Canadian Mayflower (Epigæa repens), of which there was a large stock; the noble Eryngium pandanifolium, a splendid plant for the wild garden, throwing up flower-stems 10 feet and more in height; Euonymus fimbriatus, whose young crimson leaves look like flowers in the spring.

Of Eucalypti there are about thirty species, together with Escallonia langleyensis, Fremontia californica, a handsome yellow-flowered shrub, of which there are some good specimens in the south-west; the white-flowered Illicium religiosum, and I. floridanum, with maroon blossoms; the pretty Indigofera floribunda alba, Lagerstrœmia indica, Laurus camphora, L. glandulosa, L. regalis, Lycium barbarum [? sinense] variegatum, an ornamental climbing shrub; Olearia (Aster) argophylla, with musk-scented leaves; O. insignis, O. macrodonta, O. nitida, O. nummulifolia, Olive-tree, Parrotia persica, a little-known shrub producing brilliant autumnal effect; Paulownia imperialis, Pernettya ciliaris, Philesia buxifolia, bearing Lapageria-like flowers; Phormiums in variety, many species of Pittosporum, including P. Ralphsii; Photinia arbutifolia, Pueraria japonica, a vigorous climber bearing rosy-purple flowers; Romneya Coulteri, the Fuchsia-flowered Currant (Ribes speciosum), several Senecios, Solanum crispum, Spiræa japonica coccinea, a new variety introduced by Messrs. Gauntlett from Japan; Magnolias of many species, Stephanandra Tanakei, Tetranthera californica, a rare evergreen shrub bearing white flowers; Trochodendron aralioides, Veronica Gauntletti, a shrubby species producing orange-red flower-spikes; Viburnum Awafuki, a Japanese species bearing a profusion of white flowers; and Zelkova Kaki.

Messrs. Gauntlett grow a large collection of the best of the Water-Lilies, and of the Japanese Iris Kæmpferi, or lævigata, they have some 10,000. On the day I was at Redruth, large cases of Tree-Pæonies from Japan were being unpacked. In one of the houses I saw three pots of Mutisia decurrens, a rare climber now almost unobtainable. *S. W. F.*

PEAS IN 1902.

AT no time during the last ten years have my Pea crops been so good as they were during 1902; and while my success may be partially attributed to the use of manure, a large proportion must be set down to the heavy rainfall of the year, the quantity of rain registered being 30·01 inches.

There is no lack of variety among dwarf-growing early Peas, but for the first crop I put my trust in Chelsea Gem, for although it has not the true Marrowfat flavour, as have some of the newer dwarf Peas, it turns-in quickly, and is a heavy cropper; and the first Peas tasted in the season, even if they are not Marrowfats, are always much appreciated.

Sutton's Green Gem carried some very fine pods, filled with Peas of good flavour. This variety will grow from 9 to 12 inches in height. Many may not agree with me, but I think 1 foot is quite short enough for these broad-podded early Peas, for when less than this the pods are too near the ground.

Veitch's Seedling is another fine early round Pea, growing about 18 inches in height, of good flavour, and heavy cropping properties. Veitch's Acme, growing about 3 feet in height, is an abundant cropper that I shall continue to grow. A fine-flavoured early Pea from the same firm is their Earliest Marrow, which I have grown for several years; it still holds the same place among the early marrows, and is an abundant bearer.

Of the early, large-podded marrow Peas, Thomas Laxton is unexcelled, and when sown at the same time as the earliest marrows, Early Giant or Gradus, it comes in more than a week earlier. The pods are large, closely set with large Peas of good flavour; it is a good Pea to grow for

clearing off quickly, much superior to Gradus. The last-named Pea I grew for three years, and only had it good once in that period of time; I have now discarded it. I think, if my memory serves me aright, there were two strains of this sent out, and now that it is re-selected it may prove more satisfactory.

Sutton's Ideal, sent out in 1901, did remarkably well. It grows about 3ft. in height, and produces a profusion of dark, green-coloured pods, and the Peas are of good flavour. Duke of Albany is a well-known Pea that succeeds in these gardens, and is an indispensable taller growing variety. A Pea in very much the same way as the last-named, but a few inches taller, which might be described as an improved Duke of Albany, is Laxton's Alderman. In regard to cropping I had nothing to equal it last year. This and Duke of Albany were grown side by side, in lines about 12 ft. apart, for comparison, and both were dressed with artificial manure, Alderman receiving basic slag and the other superphosphate of lime; both rows had kainit and nitrate of soda in addition, but whether the heavy crop was due to the use of basic slag I cannot say. Certainly, the results justified the use of artificials, including nitrate of soda, which last was applied when the haulm was about 18 inches high. The dressings of kainit and superphosphates were forked into the land previously to sowing the seed. For comparison, a row of Thomas Laxton was dressed with nitrate of soda only, applied when the plants were 18 inches high, but with apparently no benefit to the crop. One, if not the largest, of the broad-podded Peas is Eckford's Ideal, a Pea that reaches a height of 5 feet, which is a good second early variety. I have grown it for the last four years, and it has always been good, or if it have a fault it is in being rather tall for a second early Pea.

Glory of Devon, sent out by Messrs. Veitch, of Exeter, is a magnificent maincrop Marrowfat Pea, of which Veitch's Perfection may be one of the parents; but it is a hardier and more vigorous grower. Masterpiece proved a good cropper, and grows to about 3 feet in height. Criterion is now well known; and the newer Chelsonian is also a tall-growing Pea, of good flavour. Hertford Success is rightly named, if the term is applied to its cropping, for it quite came up to the standard of some varieties that apparently crop so heavily when grown on paper. Edwin Beckett and Weston Maincrop were, through an oversight, sown later than I intended; this, however, did not alter the quality of the produce. Weston Maincrop, offered by Messrs. Cutbush, is a tall-growing Pea, which I hope to test again. With Edwin Beckett one need not hesitate, for among all the varieties I cultivated, this possessed the finest flavour in a season generally good for Peas. Autocrat maintained its place as an excellent maincrop or late Pea. Dwarf Mammoth was likewise good as a late cropper; as was Best-of-All, which is an equally good variety for either a showery or dry season, it being likewise a continuous bearer. Ne Plus Ultra was good, as usual; and Lord Roberts, a Pea with haulm of moderate height, was a promising variety.

In the cultivation of Peas my former practice was to manure and trench the land intended for Peas, and there is something to be said in its favour if one could foretell the kind of weather. I now trench and manure the ground generally as for other crops, while before sowing I have applied various artificial manures with very good effects, and I have made use of nitrate of soda, superphosphate of lime and potash, with satisfactory effects sometimes, but not always.

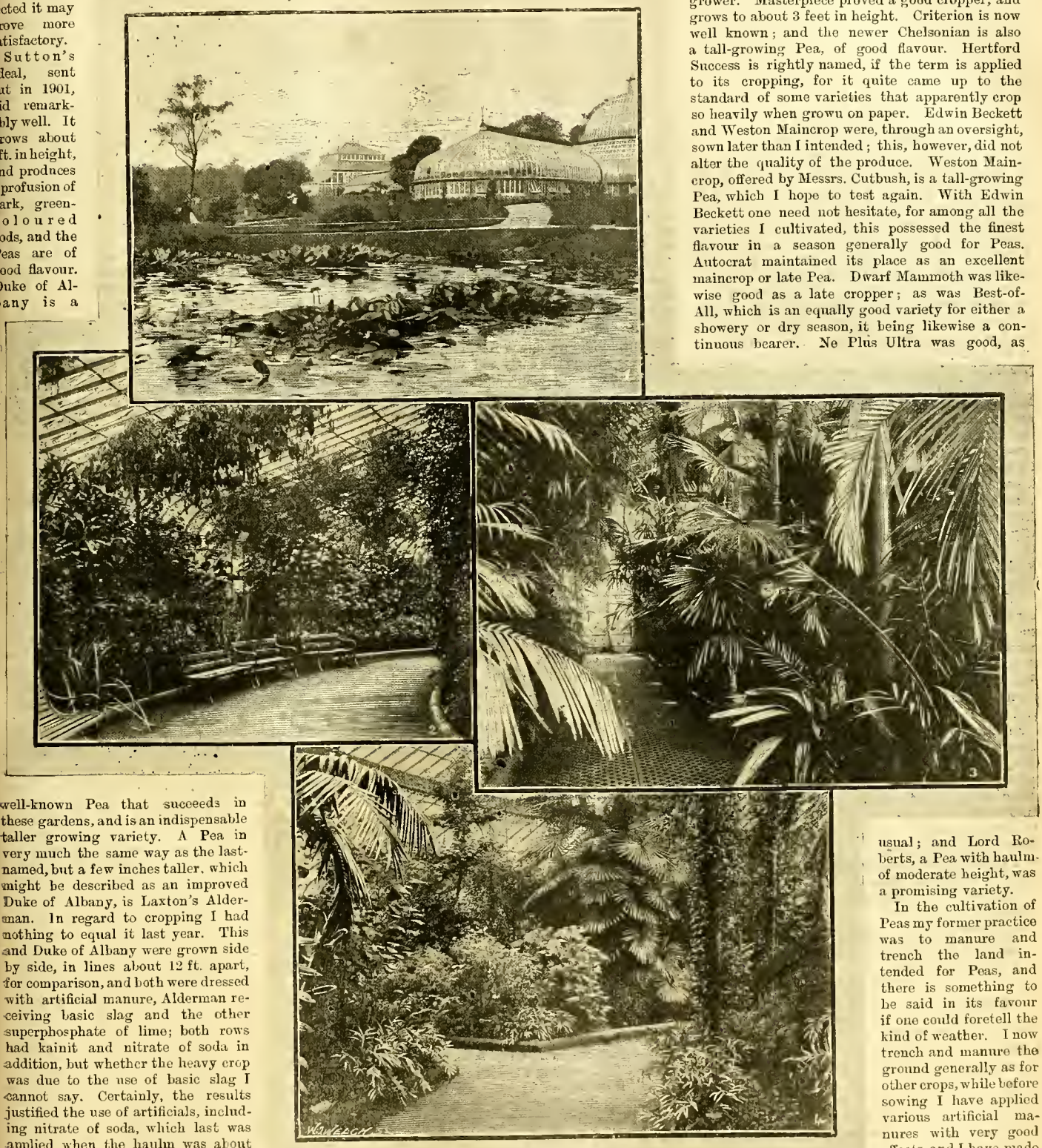

Fig 54.—Glasgow Botanic Garden.

No. 1.—Lily Pond and Bog Garden.
No. 2.—Outer Circle, Winter Garden.
No. 3.—Interior of Palm-house, centre passage.
No. 4.—Inner Circle, Winter Garden.

(see p. 129)

One's failures often point the way to success, and in the use of these manures it seems best to apply them at different stages of growth, some of them being slow in action. With basic slag the nature of the soil has to be considered, and it is better to apply it in the winter. Although the Leguminosæ absorb their nitrogen from the air, the application of nitrate to the land does benefit the plants, perhaps more so in early and midseason than later. From my own observations there must be ample moisture in the soil either by natural or artificial means, or the results of the nitrate dressing is not always satisfactory. *T. H. Slade, Poltimore, Exeter.*

THE TOMATO.

THE extensive use of the Tomato as an article of food has caused many enquiries to be made as to its nutritive value, and also as to the best methods of culture. In the United States, the Tomato has become such an important crop that, according to a recent estimate, there are canned from 3,000,000 to 4,000,000 cases of this fruit annually, each case containing two dozen cans.

In the United Kingdom, in addition to the enormous quantities of Tomatos which are grown for market, there are imported each year from foreign sources about 370 tons, which are valued at £791,339; that is, about 19*s.* per cwt., or 2*d.* per lb.

The food substance present in Tomatos in the largest amount is sugar; while the organic acids are the main substances which give individuality or character to the fruit. In tables of chemical analysis, Tomatos are given as containing from 92 to 95 per cent. of water, about one-half of 1 per cent. of ash, 1 per cent. of protein or flesh-forming matter, and about 5 per cent. of carbohydrates or heat-giving substances. The quantity of sugar which constitutes the main part of the carbo-hydrates is very variable in different varieties, but it may be said to average about 3½ per cent.

When the Tomato is to be used for food, care should be taken to retain all the juice, as the nutritive properties are present largely in soluble form, and any diminution of the amount of juice entails a corresponding loss of nutrients. For the same reason, the freshness of the fruit should not be impaired, as the acid salts quickly undergo chemical change.

In order to understand the manurial requirements of the Tomato, a study of the chemical composition of both fruit, bine, and roots becomes necessary. The following table will serve to guide us in this respect, though the amounts and proportions of plant-food removed from the soil by any crop cannot be taken as absolute indications of the requirements, inasmuch as the soil may furnish more of one constituent than another, and the plant may have the power of acquiring certain of its constituents more readily than others.

Table showing the four most important chemical constituents in Tomato fruit, the Tomato-bine and roots, each separately, and also an average for the whole plant. One ton of each contains:—

Description.	Nitrogen.	Phosphoric acid.	Potash.	Lime.
	lb.	lb.	lb.	lb.
In fruit	3·2	1·0	5·4	2·0
In bines (green) ...	6·4	1·4	10·0	6·7
In roots	5·4	0·2	7·6	12·0
In whole plant ...	5·0	0·9	7·7	6·9

The impression is very prevalent among growers that the Tomato does not require heavy manuring. This is true, if the fruit only is to be considered; but experiments show that the Tomato is a plant which quickly and profitably responds to the use of fertilisers, and that the maturity and yield are very largely influenced by the method of manuring. It must also be acknowledged that unless the plants are properly nourished they cannot yield a satisfactory crop of fruit. The foregoing analysis shows that the element nitrogen constitutes a very important factor in the growth of both bines and roots. If the plant is to produce abundant fruit, the bines and roots must be well fed with a nitrogenous food in order to keep up the vegetative power of the plant, and enable it to bring its fruit to perfection. Then, again, potash is a most essential ingredient in fruit, bines, and roots. The function of potash is to keep the bines healthy, to tone down the otherwise too stimulating effect of the nitrogen supply; it also exercises a very important part in the formation of the fruit acids. Lime, also, is an essential element, more especially in the growth and vigour of the root; it tends to render the other constituents more available, and helps on the maturation of the fruit. The Tomato plant is dependent throughout its whole life upon a proper proportion of phosphoric acid.

Although the figures of the table do not point to this as being an important item in its manurial requirements, yet we know from experience that phosphoric acid is absolutely essential, not as an element of which a fertile soil is generally deficient, but as an agent for promoting to a remarkable degree the early and vigorous development of the young plant, and carrying it rapidly over those stages, any delay in which is attended with great injury, and often with the destruction of the whole plant.

Phosphoric acid, then, in combination with nitrogen and potash, causes a much-enhanced development of the underground collective apparatus of the Tomato-plant, especially of lateral and fibrous root, distributing a complete network around the plant, and throwing innumerable feeding-mouths to the surface of the soil. We believe that if Tomato-culture is to be a success, the aim of the grower should be, not to increase unduly the above-ground organs of food-collection (the leaves), but rather the underground fibrous roots. These will assist in the blooming operation, and in the due development and colouring of the fruit.

The following table gives an illustration of the amount of selected chemical constituents required in the growth of 1 ton weight of the whole Tomato crop, and of the amounts of such food provided by half a ton of average farmyard manure:—

In 1 ton of Tomato plant (fruit, bines, and roots), and in half a ton of Farmyard Manure.

Description.	Nitrogen.	Phosphoric acid.	Potash.	Lime.
	lb.	lb.	lb.	lb.
In 1 ton, whole plant	5·0	0·9	7·7	6·9
In half-ton farmyard manure	5·5	4·0	6·0	8·0
Manure more (+) or less (—) than plant requirements ...	+0·5	+3·1	—1·7	+1·1

From these results it is seen that half-a-ton of average farmyard manure will yield half-a-pound (0·5) more nitrogen than is taken up by one ton of Tomato plants, comprising fruit, bines, and roots, each in equal proportions. The dung will also yield rather more than 3 lb. of phosphoric acid, and 1 lb. of lime in excess of the requirements of these plants. But the potash is deficient by about 1¾ lb., thus more of this element is required than is provided by the dung. This is quite consistent with experimental evidence.

For rapidly growing Tomato-plants the amount of available potash is not sufficient in ordinary farmyard manure, therefore if healthy, vigorous growth and fruit production is to be maintained, an artificial supply of soluble potash is advisable. Besides, it must be remembered that farmyard manure is very slow in its action, and requires some solvent, such as lime or potash, to render its properties more quickly assimilable. In the use of farmyard manure for Tomatos, excessive quantities should be avoided, for the reason that it encourages an undue development of stem and foliage rather than of fruit. The slowness of its action will also tend to lengthen out the life of the plant and retard ripening.

In manuring the Tomato, it should be the aim to furnish a sufficiency of nitrogen to give the necessary growth, but inasmuch as we have seen from the foregoing analysis that the Tomato belongs to the potash-consuming class of plants, any manurial mixture should be particularly rich in this element. Lime and phosphoric acid must by no means be overlooked. For a late crop of Tomatos, manures that have proved of the most service are those which contain a relatively smaller amount of nitrogen than is required for early crops, with a richer percentage in the ingredients phosphoric acid and potash.

The following formulas are recommended: one part of nitrate of soda, two parts of desiccated blood, four parts of superphosphate or bone-manure, and three parts of kainit; or one part nitrate of potash, two parts of guano or desiccated blood, and two parts of superphosphate or bone-manure. The soil compost having been properly prepared at the start, these manures may be applied as soon as the first fruits are set. They may be dissolved, and applied at the rate of half-an-ounce in a gallon of water given once a week, or the same quantity sprinkled over a square yard of soil. *J. J. Willis, Harpenden.*

PEARS OF RECENT INTRODUCTION.

THE Pear fruits early when grown as a cordon, and those who wish to grow some of the varieties recently brought into notice would do well to grow them as such, so as to put their qualities to a test. If not found satisfactory on walls and espaliers, the loss of time and space is not great. Both kinds of stocks should be employed, as by that means the gardener is enabled to ascertain which best suits his land and climate. Some of the new Pears are of foreign origin, and sometimes the trees have been grown abroad, and on other stocks than those we employ.

One of the good new Pears is Michaelmas Nelis, which might be termed an early autumn; Doyenné du Comice, which some may regard as a high commendation, but it is one that is deserved, the fruit being of delicious flavour, although of middle or small size. It is earlier than Fondante d'Automne in coming into use, if the land is well drained. Michaelmas Nelis, if grown on the Quince, is very free and a regular bearer, and quite young trees fruit freely.

Another very fine introduction as regards cropping is Marguerite Marillat, a large fruit, very prolific, fine in appearance as a cordon, and early in 1901 at Syon the fruits were ripe at the end of the month of August, but last year they were later. The tree will thrive where Doyenné du Comice fails; the flesh is sweet, and the flavour distinct and aromatic. The habit of growth is upright, and the variety succeeds on the Quince stock, and is equally fitted for a cordon, pyramid, or espalier. The fruits being large, unfits the variety for an orchard standard. Conference, one of the late Mr. Rivers' seedlings, is a valuable Pear, that has been some years in commerce, and is hardy, and a good cropper. The fruit is distinct, long, pyriform, the skin of a dark green tint, with much russet; the flesh melting and juicy. The tree grows well in almost any kind of soil; it is in season in late October. A favourite among the new Pears is Dr. Jules Guyot, an early September fruit, not unlike a Williams' Bon Chrétien, a compact grower on the Quince

stock; and to catch it at its best the fruit should be taken early from the tree, or gathered a short time before they are fully ripe. The tree is a free cropper, and the fruit handsome.

Doubtless the late ripening new Pears are more desirable than those ripening in the autumn. Of these, President Barrabé, of French origin, will doubtless become a favourite variety. The fruit is of middle size, very fine quality, and ripens in midwinter and later, according to locality and methods of storage. The tree is a close grower, and makes a fine pyramid on the Quince stock and very hardy; flesh rich and melting. Another French Pear is Le Lectier, a cross between Williams' Bon Chrétien and the Bergamotte Fortunée. The fruit large and of pleasing form; rind mottled green; flesh melting, juicy, and of fine flavour. At Syon the tree crops freely, and is of a free, erect habit; the fruits keep till March. So far the best crops have been obtained from cordons. Another modern Pear is St. Edmund's, a fine looking nice fruit, coming into use earlier than the last named, small but good; one of Messrs. Rivers' raising. It is not unlike President Barrabé in regard to size and quality. A valuable late Pear is the Duchesse de Bordeaux,

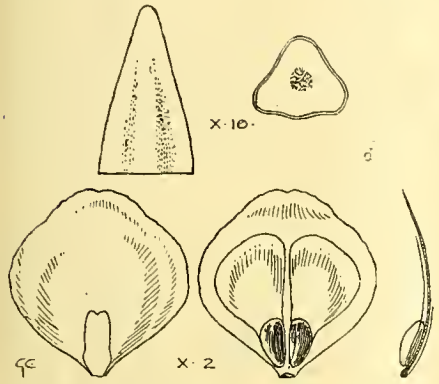

FIG. 55.—PICEA WILSONI.

Apex of leaf; cross-section of leaf; bract and cone-scale from the back; inner surface of cone-scale showing the two-winged seeds; section through bract, scale, and seed.

but to do it justice it needs a warm wall, a rich root-run, and well drained soil; it is a close grower, and with us is best on the Quince stock. The fruit is not large, but the tree is a great bearer, fruits much russeted, and its season is January to March. The flesh is rich and juicy. A few years ago the variety received a First-class Certificate as a valuable late variety. The above varieties I consider the best of the more recently introduced Pears. *G. Wythes.*

CHINESE CONIFERS.

PICEA WILSONI,* *Mast.*, sp. n.—This is a heretofore undescribed Spruce-Fir, collected at Fang, in Hupeh, by Mr. E. H. Wilson, for Messrs. Veitch & Sons.

Its appearance cannot fairly be judged by the illustration (fig. 56), which represents a herbarium specimen from which most of the leaves have fallen, thereby permitting the rugged bark to be seen. It is evidently a fine tree, concerning whose qualities as a timber-producer we have yet everything to learn. The branches are glabrous, of a pale grey colour, the leaves linear-oblong, acute, curved, four-sided, with stomata on all sides; the oblong-cylindric cones do not exceed 2 inches in length, the bracts are linear-oblong, retuse, less than half the length of the roundish ovoid entire scale, whose upper border is eventually recurved. The seeds are provided with a hatchet-shaped wing.

The distinguishing characteristics of this Spruce are to be found in the small-sized cones, the ovoid or roundish entire scales with recurved margin, and the linear oblong bract. It is allied to P. Alcockiana, but may be distinguished by the characteristics just mentioned. *Maxwell T. Masters.*

* *Picea Wilsoni*, Mast., sp. nov.—Arbor 40-70 ped., dense ramosa, ramis pallide griseis pulvinis lageniformibus crebre notatis; gemmis ovoideo-subglobosis, perulis suborbicularibus vel oblongis coriaceis castaneis imbricatis vestitis; foliis 1 cent. long, arcuatis linearibus acutis quadrilateralibus, stomatibus utrinque instructis, juvenilibus pilosulis; amentis masculis haud visis; strobilis aggregatis pendulis stipitulatis, 4-5 cent. long, 3 cent. lat., oblongo-cylindratis subacutis; bracteis lineari-oblongis obtusis squamis plus quam dimidio minoribus; squamis, coriaceis ferrugineis suborbicularibus integris vel erosis basi late cuneatis, margine superne demum revolutis; seminibus obovoideis ala oblique obovata duplo-triplove longiore superatis. Fang, in prov. Hupeh. Coll. E. Wilson, n. 1897!

TREES AND SHRUBS.

VIBURNUM TINUS AND OTHER PLANTS.

The note in the *Gardeners' Chronicle* of the 24th ult., p. 60, by Mr. J. Murray of Sopley Park, Christchurch, applies equally to the growth of Laurustinus in this part of Devon. It is not only very abundantly planted as bushes, but it is plentifully used as hedges. Under the former condition it, of course, flowers most freely, as it is not subjected to such close and constant clipping. In front of this house which faces south, is a small bush about 6 feet high which has been covered with the flowering corymbs since early in December, and at the present time the flowers are fully expanded. Separating the front garden from the road is a hedge about 6 feet high, composed partly of Laurustinus and Bay Laurel. Though this hedge was clipped several times during last summer, the Laurus-

FIG. 56.—PICEA WILSONI: SHOWING BRANCHES, FOLIAGE, AND CONES (REAL SIZE).

tinus is now in full flower though not so thickly as the bush. We have experienced some severe frosts, but they have had no effect whatever either on the Viburnum or the Bay Laurel. In some gardens about Exeter some of the varieties of V. Tinus make noble shrubs, growing up to 10 or 15 feet high, and quite as free flowering as the type. As a hedge plant, as Mr. Murray suggests, in situations where it is not affected by frost, no better plant can be used than Viburnum Tinus. While on the subject of hedges, I may perhaps say that in a garden facing the sea at Exmouth, in a very elevated position, looking across to Dawlish, is a fine evenly-clipped hedge of Furze (Ulex europæus), topping a high fence along the public path. This hedge last season formed a striking line of golden yellow, especially when lit up by the sun. It is now partially in flower. Another hedge which, though somewhat less striking on account of colour, is nevertheless noteworthy, is to be seen on the road bounding Powderham, the estate of the Earl of Devon, from Starcross to Kenton. In this case the plant used is the Snowberry (Symphoricarpus racemosus), the plants overhanging a wall of moderate height, and when the plants are in full fruit in late autumn and early winter, the white berries are very striking.
John R. Jackson, Claremont, Lympstone, Devon.

The Week's Work.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

The Fern-house.—The plants have now begun to grow, which is a reminder that dividing and repotting may soon be undertaken. It is occasionally necessary to divide Adiantums, especially A. cuneatum, and in carrying out this operation, the middle portion should be discarded. The remaining pieces should be denuded of soil with a pointed stick, and no larger pot should be made use of than is really necessary for the well-being of the plant. Such divided plants should be grown apart from the rest, and great attention should be given them in the matter of affording water at the root, which will be but little until growth has become general. Adiantum Farleyense is a variety requiring considerable care in handling, and the less disturbance of the roots, the better. This variety does well when suspended from the roof of the fernery, where more water has, however, to be afforded it than is the case when it is stood on the stage. Turfy loam and leaf-mould, sand, and a small quantity of finely-broken charcoal, will grow most species of Ferns. If the loam be heavy, peat to the extent of one-half should be used. Let the old fronds be removed gradually, as fast as new ones push up. Keep the plants, especially small sporelings, well up to the light. A night temperature of 55° to 60°, with a rise of 5° to 10° by day, will be suitable for some time to come.

The Palm-house.—Though Palms may not need repotting every year, a survey should be made of the plants as to which require repotting. It is surprising for how long a period young Palms will keep in good condition when assisted with manure-water. Cocos Weddelliana is one of the handsomest Palms for indoor decoration, and should be grown at the warmest part of the house. Kentias too are likewise very useful in the same way, and, like Cocos Weddelliana, they may be grown in small pots. A soil similar to that employed in potting Ferns is suitable for Palms, excepting that less peat may be used if the loam be good. Thoroughly good drainage is essential. Palms grow readily from seed placed in a brisk bottom-heat, and it is best to sow the seeds in the spring. Most of the varieties are the better for stove treatment, and thrive better when the degree of warmth does not fall below 55°. A temperature of 60° to 65° from now onwards, with plenty of aërial moisture, is called for.

Humeas.—Plants in 5½ or 6½-inch pots should be transferred to others having a diameter of 8½ and 9½ inches respectively. Use a compost of good fibrous loam and leaf-soil, with a small quantity of decayed manure, pounded charcoal, and coarse sand. Great judgment is required in applying water to the root, Humeas being very soon injured if afforded too much. Stand the plants in a coolhouse or pit where there is plenty of light, and safety from frost. Should aphides appear in the centre growths, destroy them by fumigation.

Azaleas that are passing out of flower should be afforded a temperature of 55° to 60°. Syringe the plants early in the morning, and again at about 2 P.M. Should any of the plants require repotting, the work is best done before much new growth is made. Turn out the plants, remove the crocks, and pick away with a pointed stick a little of the old soil. Avoid giving the plants too large a shift, as pots a couple of inches larger than those from which they have been taken are usually suitable. Use a compost consisting of three-parts fibrous peat, and one-part good loam and leaf-soil, with plenty of coarse silver-sand. Make the soil very firm, and ram it around the sides of the pot with a potting-stick; apply water with care for some weeks. In removing the old flowers or seed-pods, be sure the young growths are not pulled out as well; and plants not requiring more space at the root, should have a sprinkling of Standen's or Clay's manure once a week while growth is being made, and be well watered in. A good stock of that valuable white variety, Deutsche Perle, should be found in every garden, the plants remaining in beauty longer than any other variety with which I am acquainted. Those required for blooming during May and early June must be kept as cool as possible, avoiding too wet or too dry a state at the root, the Azalea quickly resenting either extremes.

Begonias.—The tuberous-rooted or summer flowering varieties should be started in a temperature of 55°, shaking away all the old soil if this be not already done, placing the tubers in shallow boxes of sifted leaf-soil or Cocoanut-fibre, lightly syringing the same once or twice daily, and potting up singly as soon as a couple of inches of growth have been made, using three parts loam to one of leaf-soil not too much decayed; and plenty of sand to keep it porous, placing the plants in a light position to keep the growth sturdy.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Zygopetalum Mackayi and Z. crinitum are two very useful species for flowering in winter, especially where flowers are in demand for cutting. The plants may be cultivated easily, provided they are afforded a light position in the intermediate-house and supplied with an abundance of water at the roots when they are actively making growth. The species are greatly checked in growth by root disturbance, and repotting should only be done in cases where the material has become sour or decayed. The present time is a suitable season for doing such kind of work. Let the pots be clean, and well provided with material for drainage. The compost should be similar to that advised for Cypripediums in a recent calendar, being careful to include plenty of sand and finely-broken crocks. Newly-potted plants will need to be afforded extra shade, and very carefully supplied with water until such time as the roots obtain a good hold of the compost.

Platyclinis glumacea.—The young growths of this spring-flowering species are making considerable progress, and the plants will need liberal supplies of water at the root. A position near to the glass at the cooler end of the East Indian-house is the most suitable place for this plant during the growing season. When repotting is necessary, it should be done immediately after the plants have flowered, using for this purpose a compost consisting of equal parts fibrous-peat and good leaf-soil, with a little chopped sphagnum-moss, and sufficient sand and broken crocks to render the whole very porous. Well-drained pans of moderate depth and of sufficient size to allow of the plants making two further seasons' growth are the most suitable receptacles. Let the surface of the compost remain a little below the rim of the pot, and afford water sparingly for some time following this operation. Subsequently the plants will need an abundance of water, but when the small pseudo-bulbs have attained to their full size, the supply should be again lessened, and the plants be removed to the Cattleya-house for their resting period.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Hollyhocks.—If raised from seed this plant is less liable to diseases than when raised from cuttings, and I find that many even of the double-flowered varieties come absolutely true to colour, so that the seedlings may be used with confidence in any colour scheme of planting. If seeds were sown last summer, the plants may be set out forthwith in mild weather. The finest flower-spikes are produced by plants set out at this date. Furnish abundance of manure, and let the soil be deeply dug.

Carnations.—Layers potted in the autumn of last year, which have been wintered in frames, may now be planted out where they are intended to flower, planting firmly; and if the soil is in a fairly dry condition, trample the beds lightly, and afterwards stir the surface with a Dutch-hoe. I only put Carnations into pots for wintering in exceptional cases, better general results being obtained by planting in the open in the month of October. If sparrows injure the "grass," stretch black thread low down over the plants.

Violas may now be lifted from the cold frames and planted. Autumn planting is the best for the Viola, but as it is rarely convenient at that season it has to be postponed till the present season. Violas are excellent for forming a carpet under Tea Roses when due regard is had to the proper blending of colour, as the slight shade the Rose bushes afford, and the good soil in which the Roses grow, suit them.

Pentstemons.—Pentstemons raised from cuttings should be planted early, so that they may get established before warm, dry weather sets in; some of the cuttings may not be more than callused, but this does not matter, as roots will soon form, if they be made firm in the ground.

Lobelia cardinalis.—Old clumps if put into mild warmth as advised a few weeks ago, will be now ready for division. Each crown should be split or cut off with roots attached if possible, and be replanted in boxes of sweet, light soil, far enough apart to enable them to remain in the boxes until planting times arrives. For the present keep them in warmth, and do not attempt to harden them off until they are making roots freely.

Sowing seeds.—Among seeds which may be sown in heat at this date are Lantanas, pretty plants for warm soils; Salvia patens, and Verbenas, not forgetting the old and useful V. venosa; and Pyrethrum aurenm (Golden Feather) for edging purposes in formal arrangements.

The Rockery.—In the rockery there will probably be some choice morsels of alpines beginning to grow, which slugs will soon make short work of if allowed to get at them. Bran placed on pieces of slate makes an excellent trap. At night the slugs may be found feeding on the bran, and by day they will be found hidden under the slates. In any case, provide a sufficient number of such traps, so that the vermin may not have far to travel in reaching one or other.

FRUITS UNDER GLASS.

By T. H. C.

Tomatos. — These plants are now growing strongly, and must be afforded water very carefully, keeping the soil on the dry side till a good set is secured, and afterwards, if growing in a limited space, they may be afforded abundance of water and artificial stimulants. If the plants are grown as cordons, pinch out side shoots, and tie in the leaders as growth extends, being careful to tie loosely, so as to allow for the increase in girth of the stems. Pot-on succession plants, or those for planting in odd corners, &c. Sow seeds for raising plants for an early autumn crop. Plants now in fruit should have their flowers fertilised daily, and if laterals are encouraged to keep up the supply, stop them at a joint beyond

a truss. A modorately dry atmosphere with constant ventilation, more or less according to the state of the weather, and a night temperature of 55° to 60°, should be afforded.

Figs.—Excepting where extension of growth is desired, the points of the shoots may be stopped at the fifth or sixth leaf, which will induce a second crop of fruits to form at the base of the leaf-stalks, and also assist the swelling of the present crop of fruit. This crop, if very abundant, should be thinned so as to enable the remaining fruits to come to perfection. Early pot-trees or those planted in confined spaces should be afforded water freely, and liquid-manure and other fertilisers applied frequently. The leaves should be syringed morning and afternoon in fine weather, and the paths and other surfaces damped. The night temperature may now be raised to 60°, and that of the day to 70° or 75°. Ventilate freely when the weather allows, and afford a small amount of air early in the morning. Early forced Figs suffer a good deal from infestation by red-spider, but this pest may be kept in check by the forcible use of the syringe and clean water.

Melons.—In an earlier calendar it was advised that early Melons should be grown in 12 to 14-in. pots, well-drained, and filled firmly to within 3 inches of the rim with rich turfy loam, to which charred refuse and mortar-rubble are added. These pots should be plunged in a bottom-heat of 80° to 85°, and close to the glass. The plants should not stand closer than 2 feet apart. If the compost is moist at the time of planting, no water should be afforded till some days afterwards. Lightly syringe the plants morning and afternoon in fine weather, and maintain a moist atmosphere in the house. Shade from bright sunshine till the plants are established. Remove all laterals until the bine reaches the trellis, and remove the point of the leading shoot at 18 inches from the top of the house, so as to induce the formation of side shoots. Three fruits per plant are a sufficient number for a crop. Remove gradually all shoots that would interfere with the full development of the principal leaves. If the Melons are to be planted in borders, proceed as for Cucumbers, and for the first crop close planting and the restriction of the root run are advisable, especially in low houses. After this date plant direct from the small pots in which the plants were raised Apply air whenever the weather is mild, so as to induce a short-jointed and sturdy growth. A night temperature of 65° to 70° is desirable, but in very cold weather the lower figure should be preferred. The day temperature of the Melon-house may be of 10° to 15° higher, in accordance with the weather.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Hints on Work in General.—Let all decaying leaves be removed from the stems of Kales, Brussels Sprouts, &c., and also the remains of other crops. Roots of Turnips, Parsnips, &c., that were left in the ground should be taken up and stored in fine coal-ashes or sand, in banks or conical heaps, tops outwards. Manure, dig, and trench vacant plots, choosing frosty mornings for wheeling purposes; and making deposits of road-scrapings, charred refuse, and soot, to be used as top-dressings to the land. Let land which will be sown next month be lightly dug. Use the Dutch-hoe among autumn-sown Onions. Well air Parsley plants growing in cold frames whenever there is no frost.

Herbs.—Perennial sweet herbs, to be successfully grown, should be replanted every third or fourth year. Spearmint being much required in the kitchen, and an easy plant to grow, should be transplanted every third year, otherwise the stems get wiry and the leaves small, and the plants will often die right out; and if this be not performed, a dressing of sifted leaf-soil and spent Mushroom-bed dung, applied at this date, will maintain the plants in vigour. Tarragon, Chives, pot Marjoram, and Lemon Thyme, should be likewise transplanted. Sorrel should be divided annually into small clumps, and planted in rows 18 ins. apart, allowing a foot between the clumps. The soil should be well enriched and deeply dug. The large-leaved or French Sorrel is the best. Sorrel forms a good inner edging to paths. A part of the herb-border may be reserved for perennial and annual pot herbs that will be sown next month.

Onions.—A long season of growth is necessary to ensure fine bulbs; therefore the first opportunity should be taken when the land is in a dry, workable condition to sow the seed, the ground being previously lightly dug with a fork and levelled, and then dressed with soot and salt sufficient to colour the ground. Let this dressing be pointed in 2 or 3 ins. deep, then rake the land with wooden rakes. Light soils should be trodden down very firmly, and heavy ones pressed with a wooden roller. The drills should be drawn of half an inch in depth, and at 1 foot apart. Sow the seed evenly, and apply a dressing of sifted wood-ashes, having previously filled-in the drills with the feet. This finished, trample the land in the opposite direction, and again apply wooden rakes to make all tidy and neat. Gardeners having heavy retentive land to deal with, should avoid as far as possible much trampling, and omit the final raking. Onions raised under glass last month will be ready for being pricked off into boxes filled with turfy loam two-fourths, leaf-soil one-fourth, and one-fourth dried horse-droppings and coarse-sand or road-grit. This compost should be sifted through a ¼-inch meshed sieve, be made warm, and used in a moderately dry condition. The plants should be lifted with a pointed stick, and pricked out at 3 inches apart each way, and made firm. Apply tepid water after planting, and keep near the glass in a house having a warmth of 50° or 55°. Syringe twice daily, and shade from strong sunshine; sufficient air being applied as will keep the plants sturdy, but guarding against cold draughts. After re-establishment, afford all the light possible, and air in increasing quantities, till planted in April.

Leeks sown under glass should have the same kind of treatment as Onions, but dibbling in the seedlings deeper.

Vegetable-Marrows.—If early fruits are desired, a sowing should now be made. Sow the seeds singly in large 60's, placing them in moderate heat and shifting into 6-inch pots before they get pot-bound, and planting on slight hot-beds made up in heated pits. The plants will fruit in the month of May, if they are not grown in too high a temperature. Sutton's Perfection and Moore's Vegetable Cream are excellent varieties for forcing.

THE HARDY FRUIT GARDEN.

By CHAS. PAOE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

The Fig.—The protecting materials may now be removed from the trees, and the pruning and nailing finished forthwith. If disbudding and stopping was attended to during the summer, the shoots will be well ripened, and these may be laid in at about 1 foot apart, a great mistake being made if these are crowded together. Pruning and nailing finished, afford the border a top-dressing of fresh loamy soil and mortar-rubble broken small.

Vines on Walls, Pergolas, &c.—Let these plants be pruned without loss of time, and in the case of barren rods, a young shoot should be selected near the bottom, and trained in to take its place another season. If red-spider infested the leaves last summer, paint the canes with a mixture of soft-soap and flowers-of-sulphur, and enough clay to give it consistency. Royal Muscadine, Sweetwater, and Millar's Burgundy are excellent varieties of the Vine for outdoor cultivation.

Hints on Work in General.—Any wall Pear, Plum, and Cherry-trees that were transplanted last autumn may now have the mulch over the roots removed, and the soil lightly dug with a fork, an operation that will admit warmth and air to the roots. Some varieties of the Pear form fruit-buds at the ends of the shoots that are required for the extension of the trees, and such must be rubbed off, or the shoot cut back to a wood-bud. On the 18th of this month 9° of frost were noted at 7 A.M., and the more forward buds of the Jargonelle on standard trees are blackened, but Apricot-trees that were protected by triple fish-nets have not suffered. Ground on which Strawberries will be planted in March should be kept clean with the hoe, and a good tilth obtained in readiness for planting.

THE APIARY.

By EXPERT.

Cheap Bee Hives.—A good deal has been written in reference to bee-keeping for profit. To obtain this object one must not indulge in expensive hives, nor purchase all sorts of new inventions that are placed on the market. These things are all very well for those persons who, regardless of expense, keep bees for a hobby, not otherwise. The first thing necessary is a good safe hive of standard size, this must be the first object, not only of having all hives the same as regards the inner dimensions, but as regards selling them if necessary. A good and easy plan for those who may be about to commence bee-keeping, and who wish to make their own hives, is to purchase a few of Tate's sugar boxes, and knock away one side and nail it on to the top, this will bring the box to 17 inches wide inside instead of 14 inches, and afford plenty of room to put in the extra sides. The inside measurements should be as follows: 14½ inches wide, which will allow ¼ of an inch each side of the frames, which will be 14 inches wide. A greater space than this should not be allowed, or the bees will be almost certain to build combs from the frames to the side of the hive, which will be found very inconvenient. The depth should be 9 inches, this will allow ½ an inch for the bees to crawl on the floor board without being crushed, as the frames are 8½ inches deep. The dummy board should be made to fit into the back of the hive as securely as possible, to prevent the bees getting through either at the sides or bottom, or in honey-time the bees will be building combs at the back, instead of working in the sections or shallow frames. The section crate should be made to hold twenty-one, 1 lb. sections, and if this does not quite cover the whole of the frames, place pieces of brown paper or carpet to allow the bees to have access only by way of the crate. Before commencing hive-making, a modern bar framed hive should be obtained for a pattern if possible. The cost of such a hive as described should not be more than 2s. 6d.; this with two boxes, costing 1s., will be enough to make the inside section-crate, &c.; French wire nails, 6d.; paint, &c., 1s. Anyone with a little ingenuity and a taste for carpentry, can soon make a very creditable hive at a small cost.

General Hints.—After the spell of frost we had, it will be advisable to place on each hive a cake of candy, but without disturbing the bees. The same applies to straw skeps when possible; and each skep should be uncovered to ascertain if mice have got inside, and if this is the case, put a queen-excluder zinc over each entrance.

CAPE COLONY FOR THE SETTLER.—As this publication announces in the sub-title that it gives an "Account of Cape Colony's Urban and Rural Industries, their probable Future Development and Extension," we need not further describe the scope of the book. The author is Mr. BURTON, editor of the *Transvaal Agricultural Magazine*, and the volume is issued by order of the Government of the Cape Colony, so that the information given may be trusted. There are chapters upon the Flora of the Cape, of which a very short, but as far as it goes, an excellent account is given; Native Labour, Cape Farmers, Fruit, Wheat, and Lucerne culture, Irrigation, and kindred topics. Accounts of the "divisions" into which the colony is divided form a feature of the book. The whole matter is arranged for easy reference, with plenty of illustrations, statistics, and maps. The publishers of the volume are Messrs. P. S. KING & SON, of Orchard House, Westminster.

TASMANIAN APPLE TRADE. — From the officials of the Orient Royal Mail Steam Navigation Company, we learn that the first steamer bringing fruit from Hobart in the coming season will be the *Omrah*, leaving that port on Feb. 14, followed by the *India*, the *Ormuz*, *Oceana*, *Orizaba*, *Australia*, *Oroya*, *Victoria*, *Orestes*, *China*, and the *Oruba*, of the P. and O. and Orient Pacific lines, at intervals of a week thereafter. There will probably be also some four or five steamers of other lines during the period in question, but their dates of departure are at present uncertain.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR MARCH.

THURSDAY, MAR. 5—Linnean Society Meeting.

SATURDAY, MAR. 7—Société Française d'Horticulture de Londres Meeting. Surveyors' Institution (Junior) Meeting.

TUESDAY, MAR. 10—Royal Horticultural Society's Committees Meeting, lecture on "Natural Selection *v.* Adaptation."

SATURDAY, MAR. 14—Royal Botanic Society's Meeting.

THURSDAY, MAR. 19—Linnean Society's Meeting.

MONDAY, MAR. 23—Surveyors' Institution Meeting.

TUESDAY, MAR. 24—Royal Horticultural Society's Committees Meeting (Hyacinth and Tulip Show), lecture on "Photomicography."

WEDNESDAY, MAR. 25—Lady Day. Royal Botanic Society's Meeting. Liverpool Horticultural Association, Bulb and Plant Exhibition.

THURSDAY, MAR. 26—Royal Agricultural and Horticultural Society of Jersey, Show of Bulbs. Irish Gardeners' Association Meeting.

SALES FOR THE WEEK.

MONDAY and FRIDAY NEXT—
Herbaceous Plants, Roses, Azaleas, Liliums, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12 30

TUESDAY, MARCH 3—
Palms, Bays, Liliums, Flowering and Ornamental Plants, at Pollexfen's, Pilgrim Street, Ludgate Hill, E.C., at 12.30.

WEDNESDAY, MARCH 4—
Azaleas, Rhododendrons, Palms, Roses, Herbaceous Plants, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12 30.—Consignment of 837 cases of Liliums, &c., from Japan, at 67 and 68, Cheapside, by Protheroe & Morris, at 5.—Imported Japanese Iris, Lilies, and Fern Balls; also Azaleas, Roses, &c., at Stevens' Rooms, at 12 30.

THURSDAY, MARCH 5—
Palms, Bays, Liliums, Flowering and Ornamental Plants, at Pollexfen's, Pilgrim Street, Ludgate Hill, E.C., at 12.30.

FRIDAY, MARCH 6—
Orchids in variety, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —41°.

ACTUAL TEMPERATURES:—
LONDON.—*February* 25 (6 P.M.): Max. 54°; Min. 43°. *February* 26 (Noon): rainy; 45°.
PROVINCES.—*February* 25 (6 P.M.): Max. 50°, Scilly; Min. 41°, N.E. Scotland.

Sale of Poisons.

We are now in a position to give further details concerning the recommendations of the Committee appointed to consider the question of the Sale of Poisons, which we alluded to last week. We extract such portions of the report as are specially pertinent to horticulture:—

"Your Committee found it impossible to consider and recommend a re-arrangement of the Poisons Schedule without taking into account, first, the effect of the restrictive sections of the Pharmacy Act, 1868, upon certain trades and industries; and, second, the changes which have taken place, especially in agriculture and horticulture, since the passage of the said Act.

Your Committee had their attention forcibly drawn to the great increase in the use of poisons in agriculture and horticulture since the passing of the Pharmacy Act, 1868. Sheep-dips, usually containing strong poisons, have come into universal use, and must be considered indispensable to the modern sheep-farmer. Five-and-thirty years ago, the killing of weeds, of parasitical insects, and of fungoid growths upon growing crops, by means of poisonous substances, was rarely if ever practised, but such poisonous substances are now to be reckoned among the regular auxiliaries of agriculture and horticulture.

It was not possible for those responsible for the Pharmacy Act, 1868, to foresee the degree in which these industries should come to depend upon the use of poisonous materials; nor is it credible that, had they done so, they would have enacted anything calculated either to interfere with farmers and gardeners obtaining them conveniently, or to enhance their price by creating anything in the nature of a monopoly.

Your Committee, therefore, feeling convinced that the industries of agriculture and horticulture cannot be conducted effectively on modern principles without the extensive use of poisonous materials, felt it incumbent upon them, before proceeding to suggest re-arrangement of the Poisons Schedule, to ascertain whether either or both of the above-mentioned undesirable conditions had been caused by the provisions of the Pharmacy Act, and if so, whether relaxation could be conceded without undue risk to human life.

PROSECUTION OF UNREGISTERED SELLERS OF POISON.

Under the law as it stands, certain poisons and poisonous compounds (other than liquid carbolic acid for sheepwash or other agricultural or horticultural purpose) cannot be legally retailed except by a registered chemist and druggist, and the Pharmaceutical Society is charged, under the 15th Section of the Act, with the duty of proceeding against unauthorised vendors.

The administration of this section has been characterised by considerable uncertainty and irregularity, arising, your Committee believes, out of the inadequate means at the disposal of the Society, which has no staff of inspectors, nor other regular machinery for detecting the sale of poisons by unregistered persons.

It follows from this that the effect of the 749 prosecutions undertaken during the six years 1896-1901 by the Pharmaceutical Society, and of the numerous cases in which penalties were exacted without prosecution, has been very unequally felt; for while the law has been enforced in some districts, it has been wholly inoperative in others.

Your Committee are of opinion that the obligation laid upon the Pharmaceutical Society by the 15th Section of the Act is unduly onerous, seeing that even the limited extent to which they have taken action under it has involved them in a net loss of £700 a year beyond the sums received as penalties, which are due to be dealt with as the Treasury may direct, but which the Society has been allowed to retain.

INCONVENIENCE TO FARMERS AND GARDENERS.

Inconvenience has been experienced by farmers and gardeners owing to the restriction of the sale of poisonous material to registered chemists and druggists in such districts where there is no such qualified tradesman within easy reach. Your Committee are convinced that the inconvenience would have amounted to a very serious interference with legitimate industry had the provisions of the 15th Section been universally put in effect. For example, in the Highlands and islands of Scotland, where sheep-farming is the principal business of agriculture, farmers are sometimes upwards of 50 miles distant from the nearest registered chemist and druggist, and the sale of sheep-dips is regularly carried on by ironmongers and other traders, in contravention of the statute.

A nurseryman and florist in Kent [Mr. CANNELL] gave evidence as to the extreme inconvenience caused to cultivators when, owing to the successful prosecution of a firm of seedsmen, the sale of weed-killers and insecticides was discontinued by nurserymen. He alleged that in horticulture there are numerous small cultivators and amateurs who would use these materials if they could get them, to the advantage of their greenhouses and gardens; but that chemists and druggists do not know what to recommend, whereas the nurserymen have knowledge of the proper remedies, and ought to be in a position to supply them.

CONVEYANCE OF ARSENIC AND ARSENICAL COMPOUNDS.

In the course of their enquiry the Committee had their attention drawn to the manner in which arsenic, intended for industrial purposes, is conveyed. Mr. Lytle, a manufacturing chemist, making sheep-dips and weed-killers, stated that he received arsenic by rail or by ship, and he added: 'We often receive the casks of arsenic with the contents running out on to the cart.' He stated that a small lot, say a 4-ton lot, would come by train, and that arsenic not only might be, but was, distributed about the goods station. He stated that although the railway companies have regulations as to the handling of dangerous things, they are not acted upon, and cited the Crieff case as evidence of the fact.

Asked if the barrels coming to him were marked 'Poison,' he answered: 'Some of them, not all; sometimes they are marked "Arsenic" with a small stencil; in other cases they have the word "Poison."' But he added: 'It is the exception they are so marked; in fact, the only time that I recollect their being marked "Poison" is when we have bought foreign arsenic.' Mr. Lytle stated that foreign arsenic was packed in casks enclosed in a second cask, which, in his opinion, tended to make the carriage 'absolutely safe,' but that such is never done in the case of English goods. The witness stated that instances had been brought to his knowledge where unfortunate results had followed from the careless way in which arsenic is handled in the wholesale way. There was, he stated, a very general evasion by traders of the 17th Section of the Pharmacy Act. Arsenical residue from oil-of-vitriol works—sulphide of arsenic, for example—was sent away to be treated, and any packages were thought good enough to hold it.

Your Committee are of opinion that the conveyance of arsenic, and substances containing large quantities of arsenic, under such lax observance of precaution is a source of danger to the public.

RECOMMENDATIONS.

Your Committee consider that it would be going beyond their reference to suggest changes in the administration of the 15th Section of the Pharmacy Act; they are of opinion, however, that preparations for use in connection with agriculture, horticulture, or sanitation, might be placed in a third part of the Schedule, to be sold only by licensed persons, and subject to regulations to be made by the Privy Council.

Your Committee further recommend that the traffic in arsenic should be regulated either by an amendment of the Arsenic Act, 1851, or by more stringent enforcement of the provisions of the 17th Section of the Pharmacy Act, 1868.

Your Committee beg to submit the following suggested alterations in Schedule A:—

PART III.

Preparations containing arsenic exclusively for use in connection with agriculture or horticulture, and contained in a closed vessel or receptacle, distinctly labelled with the word 'Poison,' the name and address of the seller, and a notice of the agricultural or horticultural purpose for which the preparation has been made.

Preparations of Tobacco, or the alkaloids of Tobacco, exclusively for use in connection with agriculture or horticulture, and contained in a closed vessel or receptacle, distinctly labelled with the word 'Poison,' the name and address of the seller, and a notice of the agricultural or horticultural purpose for which the preparation has been made.

Preparations of carbolic acid, or its homologues, for use as sheep-wash, or for any other purpose in connection with agriculture, horticulture, or sanitation, and contained in a closed vessel, distinctly labelled with the word 'Poison,' the name and address of the seller, and a notice of the special purposes for which the preparations are intended."

ROYAL HORTICULTURAL SOCIETY.—*Alteration in Rules for Judging.*—Everyone possessing a copy of the Rules is requested to make the following alterations:—Page 14, line 4, should in future read thus: "Muscat of Alexandria or other Muscat Grapes, 11." And the word "other" should be inserted before "Black Grapes." By order of the Council. *W. Wilks, Secretary.*

"THE JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY."—The part for December, 1902, reached us recently, and we can only repeat the encomiums we have already passed on former parts. Dr. Cooke's article on "Pests of the Flower Garden" is so useful that we may hope it will be issued as a separate book. The Earl of Annesley contributes an article on the "Ornamental Trees and Shrubs at Castlewellan," with several beautiful illustrations. Professor Potter deals with a disease of Carnations, due to the growth of Septoria Dianthi. Then follows a report of the Rose show and conference, both of which were in themselves full of interest, but sadly interfered with by the illness of the King, which it will be remembered was made known on the afternoon of the first day of the show. Mr. Baker contributes descriptions and illustrations of two new Roses from the S.W. United States, R. minutifolia and R. stellata, both near allies of R. spinosissima. Miss Anne Dorrance has an article on "Rose Forcing in America," which may be commended to the notice of our market growers. M. Maurice de Vilmorin describes numerous Asiatic Roses which he has in cultivation. M. Viviand-Morel treats of hybrid Roses; Miss Jekyll deals with garden Roses, a subject taken up also by Mr. William Paul. Chinese Roses (species) form the subject of some remarks by Mr. G. Nicholson; M. Viviand-Morel has an article on the "Methods of Striking Roses." The sensitiveness of cultivated Roses to changes of weather finds an able exponent in Mr. Ed. Mawley. As an illustration of a perfectly hardy Rose, Mr. Mawley cites Bennett's seedling. Rev. J. Pemberton, Mr. A. Dickson, and Mr. O. G. Orpen, descant upon the hybrid Tea Rose; Mr. George Paul upon exhibition Roses, and Mr. G. Mount on Rose culture under glass; lastly, Tea Roses form the subject of a communication from Mr. Frank Cant. After this enumeration there can be no question as to the success of the Rose Conference. The Malta Botanic Garden is described by Dr. Debono; and Professor Henslow contributes some remarks on the flora of that island. Mr. A. Gaut contributes a valuable report on hardy fruits grown in Yorkshire; whilst the Gooseberry mildew (Sphærotheca) finds an exponent in Mr. Ernest Salmon. Some of Professor Henslow's lectures on various subjects to the Chiswick students are reported. Then follows a very important communication from Captain Hurst on the application of Mendel's principles to Orchid hybrids. "For all practical purposes," concludes Capt. Hurst, "Mendel's principles may be safely accepted as a working formula for the hybridist in general and the Orchidist in particular." Fruit trees in pots form the subject of a communication to the Horticultural Club by Mr. T. Alfred Rivers; and horticulture in Egypt is treated by Mr. Lionel Saunders. The remainder of the part is taken up with reports on the trials at Chiswick, including Tomatos, Asters, Phloxes. The short abstracts from current literature are becoming increasingly useful.

FORESTRY. — In the House of Commons, February 18, Sir CHARLES DILKE asked the President of the Board of Agriculture, if it is intended to take any steps to carry out the Report of the Departmental Committee on Forestry before the House of Commons has the opportunity of expressing an opinion as to the suitability of the centres recommended, to which the following reply was made by Mr. HANBURY: "The evidence has not yet been printed, and I am therefore not in a position to decide as to the urgency of any particular recommendation. But I will, of course, take care that the Right honourable baronet, or others interested, have a proper opportunity of expressing their views."

LINNEAN SOCIETY.—On the occasion of the evening meeting, to be held on Thursday, March 5, 1903, at 8 P.M., the following papers will be read: 1. On some points in the Visceral Anatomy of the Characinidæ, by Mr. W. S. ROWNTREE, F.L.S. 2. On the Anatomy of the Pig-footed Bandicoot, Chæropus castanotis, by Mr. F. G. PARSONS, F.L.S. 3. Further notes on Lemurs, by Dr. ELLIOT SMITH.

THE NATIONAL HORTICULTURAL HALL: AN OFFER.—Mr. ROBERT SYDENHAM, of Birmingham, offers a contribution of £50 towards the building fund, providing twenty nurserymen or seedsmen will give the same amount; replies should be sent to G. J. INGRAM, Secretary of the Appeal Committee, Royal Horticultural Society, 117, Victoria Street, London, S.W.

—— The Drapers' Company have contributed £105 towards the building fund. The trustees of the Williams' Memorial Fund at their recent meeting agreed to contribute £10 to the fund being raised to secure the erection of a Hall and offices for the Royal Horticultural Society. Mr. MAYNE, of Bicton Gardens, sends us, for the same purpose, 10*s.* 6*d.*, which has been transmitted to the proper quarter.

—— COLLECTING FOR NEW HALL. Will other gardeners follow the excellent example of Mr. GEO. BOND, of High Ashurst Gardens, Dorking, who has collected £4 in aid of the building fund?

DR. PRIOR.—Dr. R. C. A. PRIOR, of 48, York Terrace, Regent's Park, and Halse House, near Taunton, Somerset, who died on December 5 last, left estate of the gross value of £110,781 3*s.* 7*d.*, and of the net value of £108,781 3*s.* 7*d.* He bequeathed £100 to the Linnean Society; and his herbarium to the Directors for the time being of Kew Gardens, and the executors may expend £50 in carrying out this bequest.

COTTAGE GARDENS AND AMATEUR GARDENERS. — The Dean of Rochester sends the following note:—"We have so many societies in this neighbourhood [Rochester], for the extension of cottage gardens and the encouragement of amateur gardeners; so much has been done by our Kent County Council to confer the advantages of horticulture upon the working classes by the appointment of experts, to supervise, to give lectures and practical instruction, to establish exhibitions, to reward success; and the happy results of these beneficent endeavours have been so often seen in a closer attachment to home life, in escapes from temptations and evil habits to healthful and useful employment, in the variety and increase of wholesome food, in that admiration of the beautiful, which purifies the mind and exalts it to look 'through Nature up to Nature's God.' All these considerations assure me that a large number of your readers will read with interest of a new and generous attempt to evoke enthusiasm, ambition, and experience among these cottage and amateur gardeners. In addition to the local shows, at which individuals compete with each other, Lady ALGERNON GORDON LENNOX proposes an exhibition, on the Bank Holiday in August next, at Broughton Castle, Banbury, for societies or groups of villages, each society or group to select from its members a collection of hardy flowers, fruit, and vegetables, grown by cottage gardeners and amateurs only. The Lennox Challenge Cup value 50 guineas, will be awarded to the winner of the first prize, to be held for one year, and retained after three successive years of victory. The Royal Horticultural Society will present four of their Banksian Medals, and £30 will be given in money. The exhibition is restricted to gardeners dwelling in Northamptonshire, Oxfordshire, and Warwickshire, but we may hope that this example will be followed in other counties by those who enjoy, and would impart to others, the happiness of a garden." *S. Reynolds Hole.*

THE COUNTESS OF SPENCER SWEET PEA.—A Midland seed merchant writes:—"There seems to be an impression abroad that this pretty variety, which was certificated in 1901, is likely to be lost on account of the seed failing to ripen properly last year. The crop was certainly disappointing, and was so small that it was impossible to quote it this year; but having secured from the original raiser a fair quantity of seeds, which have long since been sent to his seed-raiser on the Continent, he hopes to have a sufficient quantity to meet all reasonable demands for the variety next year."

THE NATIONAL AMATEUR GARDENERS' ASSOCIATION.—We have received from the Secretary of this Association, founded in 1890, the Syllabus for 1903, and the report and balance-sheet for 1902. From this we learn that the Association is making progress slowly. The balance-sheet submitted shows a slight improvement on that of last year, but there is still a balance on the wrong side. Monthly exhibitions are held, and prizes awarded. The next meeting will be held on March 3, when Mr. J. CHEAL, of Crawley, will give a lecture anent his rambles in the U.S.A. and Canada, with lantern-slide illustrations. The Secretary is Mr. A. J. FOSTER, 57, St. Donatt's Road, New Cross, London, S.E.

THE OPEN-AIR TREATMENT OF THE AILING.—There are upwards of half a hundred open-air sanatoria in this country for those who can well afford to pay for the treatment, but for the poorer class of patient little provision has been made. To meet the pressing need, a Working Sanatorium Colony has been inaugurated by Drs. CHARLES REINHARDT and FRANK FOWLER at Ipsden, near Wallingford. Patients who are not too ill to do some outdoor work, and who can pay a small sum, or for whom a subscription can be raised, are received at the Subscription Sanatorium, Ipsden, Wallingford (Mr. E. SMITH, Secretary), and they not only have the opportunity of being restored to health by the open-air treatment, but they are at the same time enabled to fit themselves for an open-air life by learning such occupations as poultry and pheasant rearing, and suitable forms of agriculture and horticulture. Women patients, whose state of health is considered suitable, also engage in outdoor pursuits at the discretion of the Resident Physician.

VALUE OF A HERBARIUM.—In a recent issue we quoted from *Botanizing*, Prof. W. W. BAILEY's practical book for field botantists, an extract on the usefulness of botanic gardens. The following appreciation of a herbarium, from the pen of the same author, forms an interesting supplement:—"But let us consider a little more closely the uses of a herbarium, and of a botanic garden. In regard to the former, it is to be said that much of the systematist's work is of necessity upon dried plants. These he soaks in warm water, which in a measure restores the contours, and softens the tissues so that they can be examined. A botanist could not by any chance visit all countries, or even every part of his own, but in the herbarium he can have all or a large part of the plants of any given region exposed in their natural sequence, or what science at the time considers such. Plants even of one family or genus are not all simultaneously in flower or fruit, but in the herbarium all parts can be thus viewed. The natural affinities and geographical and alti-

tudinal distribution can be learned in no other way, though closet work must need supplement more direct field observation. Again, the herbarium is a cyclopædia of ultimate appeal. To it the student in doubt may appeal as to an authority. At least, he will ascertain what the best investigators have thought. Hence a fine public herbarium is something to be amassed and cherished. A botanic garden is almost equally important. Therein plants should be arranged as nearly as possible by their natural affinities, well and clearly labelled, so that all may learn them. Many horticultural experiments can here be tried. Moreover, the garden should, like that of Kew, be a centre of dissemination both of knowledge and useful products. It should at all times be open to the public, and hence become a park of most delightful and varied usefulness."

"THE NATURAL HISTORY OF PLANTS."—The re-issue of this important periodical (BLACKIE & Co.) has now reached the 8th part. It was originally written by Prof. KERNER, of Vienna, and the English edition has been prepared by Prof. F. OLIVER. It is nicely got up, and beautifully illustrated, and is so complete and "up-to-date" that it should form part of every garden library.

"THE GARDEN GAZETTE."—We congratulate our Melbourne friends on the success of their enterprise in providing the colony of Victoria with a high-class and well got up Journal. Our contemporary may be supposed to know its own business, but we in Europe should welcome some signs of the development of Australian horticulture proper, by which we do not mean a mere repetition of what is done in Europe or America, but the culture and improvement of native Australian plants, which would afford so much greater novelty and interest. We are glad to see the names of Mr. GUILFOYLE and Mr. POCKETT, in the new Gazette.

APPLE "PRINCE BISMARCK."—This Apple, Mr. CHARLES DRAPER states, in the *Garden Gazette* of Melbourne, is of Colonial origin, having in fact, been raised near Maryborough, Victoria. The facts are these:—Some years ago, some fine specimens of a new seedling Apple were sent to the Royal Horticultural Society (Victoria) for classing and naming, and were highly approved of by the fruit judges, Messrs. DRAPER & HARBISON, who named the new variety "Prince Bismarck." This first exhibit was sent in by Mr. CLARKSON, of Maryborough. A curious coincidence now occurred in the naming of this Apple. At the next meeting of the Society, another claimant came forward with still finer specimens of this Apple, exhibiting fruit that Mr. DRAPER declares were the largest Apples that he ever saw in all his lengthy experience as a fruit grower. These were exhibited by the raiser, and were from the original tree in his orchard, and curiously enough he was a German, an orchardist of Smoky-gully, Maryborough, whose name Mr. DRAPER does not recollect. So quite unwittingly the Apple was most aptly named "Prince Bismarck," under which name it has been propagated and distributed ever since. This variety was the result of a cross between Emperor Alexander and Stone Pippin, and is a fine cooking variety, retaining the high colour and handsome appearance of "Emperor Alexander" and the firm flesh of "Stone Pippin." It is an early and heavy cropper.

FRUIT NOTES FROM TASMANIA.—The following is extracted from a communication by the Secretary for Agriculture, Tasmania, under date December 23, 1902, to a correspondent of this journal:—"Whilst it can hardly be expected that the same enormous yield per acre that was obtained this past season will recur next year, yet the steady advance that has been made in the direction of planting out fresh areas during th past few years will help to keep up a large yield in the aggregate, and thus act as a set-off against the probable light yield in those full-bearing orchards which carried such heavy crops last season. Generally speaking, the present prospects of this immense industry are excellent; each season sees a distinct advance made by orchardists recognising the efficacy of the various sprays recommended by the Department, and their more widespread application. The adoption of the 'Peacock' (10 by 15 by 20 inches) fruit-case, which now carries all the fruit to England, and almost all fruit grown in Tasmania to the large markets on the mainland (Sydney, Brisbane, &c.), has proved a great saving to growers in this State. Not only does it require less timber to make, but it is easier to handle, easier for the grower to fill when picking, and can be stowed away in greater number to the ton on board ship. In a recent article of the *Canadian Horticulturist*, the Dominion representative in London recognised that Tasmania was to the fore in the style of package and its general get up. The number of different shipping companies at present competing for the carriage of Tasmanian Apples to London and elsewhere in the Old Country is all in the interests of the fruit-grower, as it means improved methods of carriage, and more care exercised over the fruit whilst on board ship, with the general tendency to still further reduce the freight."

—— From recently-issued statistics, we learn that the total area in acres under Apples is 8,396; Pears, 730; Apricots, 530; Plums, 508; Cherries, 211; Peaches, 121; Raspberries, 886; Gooseberries, 461; Strawberries, 91; Currants, 531. As to the yield last year, Apples gave 843,348 bushels, Pears yielded 50,212 bushels, whilst other fruit gave 65,129 bushels.

THE NATIONAL ROSE SHOW.—We are requested by the President of this flourishing Society to publish the subjoined note, which we commend most heartily to the notice of rosarians of all degrees:—"The National Rose Society has greatly added to the beauty and interest of its later exhibitions by awarding prizes to 'garden or decorative Roses,' of which a 'selection of the fittest,' is included in their admirable official catalogue. The committee is most anxious to increase the attractions of the show, and to improve the arrangement of the flowers; and it might be helpful if some of those critics who are most severe in their denunciation of the present methods, would kindly make a few practical and possible suggestions as to the future. We all desire more diversity, more graceful adaptations, more room and less heat in the tents, and outside of them the surroundings of a spacious garden, with umbrageous trees, comfortable seats, and charming grottoes; but at present we are in the unhappy condition of 'Little Bopeep, and don't know where to find them.' As for the cruel suggestion of a two days' show, which, with its faded petals and *pot pourri*, intensified by a few 'renovations,' would represent the decline and fall of Queen Rosa's empire. I should anticipate that the visitor to such a dismal display would

> Feel like one, who treads alone
> Some banquet-hall deserted,
> Whose guests are fled, whose Roses dead.

Or like MARIUS weeping over the ruins of Carthage, or some enthusiastic bedder-out in his garden after a hailstorm! Better to bear the ills we have, and try to overcome them, than fly to others which we know not of. Sufficient unto the day is the evil thereof. *S. Reynolds Hole, President of the National Rose Society, The Deanery, Rochester, February* 21, 1903."

MR. GEORGE STANTON, who has, with his many other duties, had charge of the gardens at Park Place for the last thirty-two years, is giving up the management of the gardens in order to devote all his time to the farms and estate. He is succeeded in the gardens by Mr. T. J. POWELL, who has been under Mr. STANTON as foreman for many years.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The Earl of WARWICK will preside at the sixty-fourth anniversary festival dinner in aid of the funds at the Hôtel Métropole on June 24 next. The Secretary, G. J. INGRAM, 175, Victoria Street, London, S.W., will be glad to receive the names of those willing to act as stewards, or to in any way assist to make the gathering a success.

BACTERIA AND OTHER MICRO-ORGANISMS AND MINERAL MANURES.—To encourage investigations into the increase of fertility in soils by the action of bacteria and other micro-organisms, under the influence of mineral manures, with special reference to manuring with basic slag, the Berlin Association of THOMAS's Phosphate Works has instituted a competition, with prizes amounting to a total of £1,950. Scientific essays and experiments conducted by practical farmers will be admissible in the competition. The competition is to be open to all, without regard to nationality. Competitors are requested to send in their essays, written in German, to the address of the Association, Berlin, S.W., Hafenplatz 4, not later than February 1, 1906.

AN AUTOMOBILE LAUNCH.—Count ZEPPELIN, the inventor of the first navigable airship, has completed another invention. It consists of an "automobile launch," which possesses the peculiarity of having its propellers in the air. According to the inventor, the launch will be of the greatest use in tropical lakes and rivers encumbered with aquatic plants, which, obstructing the screw, render an ordinary steam launch useless. This novel launch is extremely light, has a draught of only 10 inches, and it skims the water at a rate varying from 14 to 16 miles an hour.

BOTANICAL CONGRESS AT VIENNA.—A congress will be held in Vienna from June 12 to 18, 1905. The list of committees has been already circulated, from which we find that Dr. RICHARD VON WETTSTEIN and Dr. JULES WIESNER are to be the presidents. Dr. ED. HACKEL and Dr. HANS MOLISCH, of Pragne, vice-presidents; and Dr. ALEXANDER ZAHLBRUCKNER, curator of the botanical section of the natural history museum, Vienna, general secretary. A large number of Austrian botanists comprise the general committee, and sub-committees are appointed in the various sections—1, finance; 2, festivities; 3, exhibitions; 4, excursions; 5, nomenclature. All correspondence should be addressed to the secretary, Dr. A. ZAHLBRUCKNER, Vienna, I. Burgring 7.

THE PREVENTION OF CORRUPTION.—Earl GREY asked the Lord Chancellor whether it was the intention of His Majesty's Government to reintroduce, at an early date, with the view of its becoming law before the end of the current Session, the Prevention of Corrnption Bill. He said that last year he sat on a departmental committee of the War Office on canteen contracts; and the evidence taken in the course of that inquiry disclosed a state of things so grave that he held it would be a scandal if any delay were allowed to occur before their Lordships' House took the necessary action to make this form of corruption a criminal offence. He was convinced that the practice of accepting and offering secret commissions was nothing short of a canker attaching itself to the vitals of our commerce. He had been requested by the great body of co-operators, who, as their Lordships were aware, numbered 7,000,000 of the population, to ask the noble and learned Earl what were the intentions of the Government with respect to this subject.

and to express a hope that the Government would in the interest of honest trading endeavour to secure the passage of a Bill through Parliament. The Lord Chancellor said he had himself received since last year ample proof of the extraordinary development of the system of corruption by what were delicately called commissions, but which were, in truth, bribes to people to betray their duties to their employers. But whether the facts collected and published have not to some extent increased it, he did not say; but he could not help thinking that a great many people had learned for the first time from them how easy it was by pressure on others to insist on commissions. The fact, undoubtedly, was that the system had grown extensively, and he agreed that it demanded the attention claimed for it. So far as he was concerned, he was happy to say that he held in his hand a Bill which, as soon as the other business, of the House was disposed of, he proposed to ask their Lordships to read a first time. In the congested state of the House of Commons business, there was no doubt that there was great difficulty in getting on with a Bill of a character that was neutral, although it was most important socially. He would do his best to push the Bill through the House, and would do what he could to advance the prospect of its becoming law, because nobody felt more strongly than he the enormous importance of this question. The Lord Chancellor then presented a Bill for the Prevention of Corruption, which was read a first time.

New Cycads from the Congo. — M. de Wildeman has recently published an enumeration of the plants collected on the Congo by M. E. Laurent of Gembloux, among which we find a new Encephalartos, E. Lemarinellianus (after Capt. Lemarinell). M. Gentil has forwarded to Laeken living specimens, so that we may expect fuller details shortly.

Xanthosoma × Caladium.—M. Dybowski, of the Nogent Colonial Garden, recently showed before the French Horticultural Society, a fine set of new hybrids obtained by crossing Xanthosoma sagittifolium and Caladium pictum. The crossing was effected in Reunion, and the bulbs were forwarded to M. Dybowski when they were the size of small Hazel-nuts. Placed in the Colonial Garden they grew well, and it is hoped that they may prove sufficiently hardy to pass the cold season out-of-doors in a sheltered spot, as do Begonias. The plants are like Xanthosoma as to foliage, but the leaves have white-yellowish, or red spots like those of Caladium. They are not specially fine, but do not fall in winter. M. Dybowski hopes to make them a starting point from which to obtain a race of richly coloured plants.

Horticultural Congress in Paris. — A Horticultural Conference will be held in Paris on May 22 next in the rooms of the Société Nationale d'Horticulture de France, 84, Rue de Grenelle. The following questions are offered for discussion:—1. Methods of training and pruning Peaches previously to forcing them; 2. Cold storage appliances and their uses and effects; 3. Influence of fertilisers on the ripening and preservation of fruit; 4. Horticultural monograph dealing with one genus of plants; 5. Selection of seed with a view to originate or create varieties; 6. The method of growing the same crop continuously in one place; 7. Which are the best insecticides and fungicides? Mention the constituents of those recommended; 8. What is the best substitute for stable-manure for vegetables? 9. How may cold storage be made to assist in forcing plants by causing them to develop prematurely, or by retarding their development; 10. Is a horticultural museum of use, and how can it best be started? 11. What are the best methods of sowing, raising, and improving Orchids? 12. On the practical utility of leaf-mould in the cultivation of various Orchids; 13. How may nurserymen protect their own interests in regard to new varieties of their own raising? 14. Is it better to sow freshly gathered or stored seeds? Give reasons for either course as adopted for different plants. Contributions should be written in French, and forwarded to the office of the Society before March 19.

Publications Received. — *Agricultural Bulletin of the Straits and Federated Malay States*, December, 1902. Contents: Coffee and other products in Zanzibar; Cultivation of Orchids for Amateurs, by C. Curtis; Funtumia elastica, by H. N. Ridley, &c.—*The Transvaal Agricultural Journal.* Issued by the Agricultural Department; edited by A. Burton. Vol. i., No. 2, January. Contents: Rural Notes, Fruit Growing Districts, &c. A valuable publication for all interested in the Colony and its development.—*Guide to Hope Gardens, Kingston.* By Mr. W. Jekyll. A handy account of well-known gardens in which much good work is done. It is trustworthy, being published under the authority of the Governor of Jamaica, and pictures and letterpress are alike pleasing. Mr. W. Fawcett is the Director of Public Gardens and Plantations in the district.—*Transactions of the English Arboricultural Society*, vol. v., Part 2. Compiled by John Davidson, Secretary and Treasurer. This contains reports of meetings, articles on French forests and forestry, and on various other suitable subjects.—*Annual Report of the Jamaica Board of Agriculture and Department of Public Gardens and Plantations*, 1901-1902. A satisfactory record of work and progress, though in some stations a wet season proved a great hindrance.

ÆSCULUS INDICA.

The Indian Horse-Chestnut seems to have been first introduced from the Himalayas to England about the year 1851. Seeds were sent home by Colonel Bunbury to his brother at Mildenhall in Suffolk, and a tree raised from them flowered there in July, 1858. I do not know of any big specimens of it anywhere in this country now, although the one that flowered at Mildenhall forty-five years ago ought, by this time, to be a big tree if it is living—but I fear it is no longer in existence. Possibly the species is not hardy enough to survive the severer winters of the midland and eastern counties, but it ought, nevertheless, to be perfectly at home in the south and south-west of England and Ireland. In sheltered places at Kew it has succeeded very well during the last seven or eight years, and has flowered a few times. The Supplementary Illustration was made from a branch of a young tree that flowered there last year. Æ. indica is quite distinct from all other cultivated Horse-Chestnuts. Its foliage is very striking, for there are sometimes as many as nine leaflets to a leaf, the largest of them being 12 inches long, and 3 or 4 inches wide. They are spreading, as in the common Horse-Chestnut, of a rich dark green, and serrated; the leaf-stalks (as well as the young wood) are tinged with a Rhubarb-like red. The flowers are borne on an erect terminal raceme 8 to 10 inches long, the petals being white, the two upper ones with a red and yellow blotch at the base, and the two lateral ones flushed with pale rose. The long stamens add much to the character and beauty of the raceme. It does not blossom until June and July, when the common Horse-Chestnut and several of its allies are past, and this adds to its value. It is a native of Nepal and other parts of northern India, where it is found at elevations up to 10,000 feet; it is also a native of Afghanistan. There it rivals the common Horse-Chestnut in stature and bulk, growing as it does 70 feet high, and having a trunk 10 feet in circumference. It appears to be worth a serious effort to introduce in quantity. Like our common species, its seeds lose their vitality soon if kept dry. They should be gathered and sent off as soon as ripe, and packed in fairly moist soil, so that if they commence to germinate on the journey there is a sufficient supply of moisture to keep them alive till suitable conditions can be given. Of some scores of seeds received in ordinary paper packets in recent years at Kew, not one has germinated. *W. J. Bean.*

HOME CORRESPONDENCE.

A fruit room.—To "Subscriber," who is seeking information regarding the erection of a fruit-room, I may say that last year in these gardens I had built what is proving an excellent fruit-room at a—comparatively speaking—very small cost. It is a lean-to building facing west, the height at the back is about 11 feet, the front 7 feet, length 15 feet, and the width 8 feet. Material used, sides and ends of feather-edged boards outside, and match-boarding inside, the 3 or 4 inch space between these boardings, from the floor to the roof being filled with dry sawdust. The roof is also of match-boarding inside, with flooring boards above that, then felt, and pantiles, these being much cooler in summer and warmer in winter than slates. The footings of the building are of concrete, and come up about 18 inches above the ground-level. The floor consists of about 7 inches of concrete, rendered smooth with about 1 inch of cement and sand. Although we have had 14° of frost, such a building has not gone below freezing point, so that I have not needed to heat it, as I have only Apples and Pears; but it is very likely if Grapes had to be stored, a somewhat higher temperature would be required. The stages for the fruit are at the sides and ends, and they are 18 inches wide, made of battens planed on the top-side, and the upper edges bevelled. "Orr's patent fruit trays" are excellent for economising space in the fruit-room, and if made use of there is really no need of stages at all. I may add, that I have two small shutter-ventilators in the back, and a small window with shutters in the front, and the room is kept dark. The fruit keeps fresh and plump. *W. H. Robbins, Chislehurst, Kent.*

—— I would advise "Subscriber" to obtain from Messrs. J. Veitch & Sons, or Messrs. Bunyard & Co., their photographs and instructions for constructing fruit-rooms and houses. I built one lately on the plan these experienced nurserymen recommend, and find it very satisfactory. The walls are built of brick, and are hollow. I used bricks on edge, with the moulded face outwards, which gives an original and ornamental effect; the inside wall is built with the smooth face of the bricks inwards. The two walls are bonded together with headers at intervals, which makes the wall very strong; and the air-space between the two walls, of about 4 inches, secures an even temperature. The roof is boarded, and well thatched. The floor is of earth sunk about 2 feet below the surface of the ground; and ventilation is provided above and below by hit-and-miss iron ventilators, protected by sheets of perforated zinc. There are two doors, a solid one outside, the inside one having panels of perforated zinc, which can be provided with shutters if necessary. I shall have much pleasure in showing "Subscriber" the house if he will take the trouble to come here. *A. G. Sandeman, Presdales, Ware, Herts.*

Calanthe Veitchii.—I was much pleased with Mr. Mayne's remarks in last week's issue on Calanthe Veitchii. I notice that Mr. Mayne places his pseudo-bulbs, when potted, in a Melon-house. I think it would have been more instructive had Mr. Mayne described his Melon-house, if a lean-to, three-quarter, or a span-roofed house. I presume they are grown on the back shelf if a lean-to house or three-quarter span, or on shelves near the roof if a span-roofed house. I may say that I am not now an advocate for growing Calanthe Veitchii on shelves near the glass. We grow at Dawpool seventy plants of this beautiful Orchid, and more would be grown if space allowed. The pseudo-bulbs are potted about the first week in March, singly in 5 and 6 inch pots, the pots being filled with clean crocks to the depth of 2 inches, and the compost of which use is made consists of good turfy loam and cow-dung, a small quantity of charcoal, and a sprinkling of Orport Gravel. After potting, the pots are stood on inverted 6-inch pots on the centre bed of gravel in a lean-to stove, where they remain till the plants require a drier atmosphere, that is when a score or so of flowers have opened; a house is then chosen where a suitable temperature and atmosphere can be

maintained. When the spikes are fully developed they are removed to the conservatory, and arranged on the side stages interspersed with Ferns, so as to hide the pots and pseudo-bulbs; and a very fine feature they present, until such times as they are cut for house decoration. The pseudo-bulbs are then stood in a suitable place fully exposed to sun-light, until the potting season comes round. Many of the pseudo-bulbs throw up two good flower-spikes. During the season of growth various liquid-manures are afforded; and when the flower-spikes are well up, say 5 in. high, a top-dressing of loam and cow-dung is applied. *R. Horne, Dawpool, Cheshire.*

LABELLING FRUIT TREES.—Another easy mode of labelling fruit trees, in addition to those methods described by Mr. Page in the Calendar of the Hardy Fruit Garden for January 17, is that of stencilling the names on cast-iron or zinc labels, which have previously received two coats of white-lead paint. Indian-ink is the best to employ for the purpose, and if the paint is perfectly dry, the name, whatever it may be, will stand out quite clear and legible on the surface of the label, and if varnished afterwards it will last for years. A handy man can stencil a great many labels in a day after a little practice. Brass stencils of various sizes and types of letters can be obtained through a good ironmonger, and the Indian-ink can be procured at any stationery depôt, where drawing materials are kept in stock. *A. W.*

THE GOOSEBERRY.—Much has been written lately in the *Gardeners' Chronicle* about Gooseberries, and a summary of the whole matter may not be out of place at this date. There is no comparison possible between this fruit and say Pines, Melons, Grapes, Peaches, Nectarines, Apples, and Pears. Most gardeners like to display as many dishes of fruit as is possible with the means at their command, and the Gooseberry is not despised. It is almost the first out-of-doors fruit to be sought after for culinary purposes, and makes a fine preserve. We cannot expect to get the full flavour of this fruit when it is grown on a north aspect, but it certainly can be kept till late in the year, as may also Red Currants and other fruits. If a Gooseberry-bush is properly pruned, that is by leaving the shoots long and thinning them, and nipping off the points of the young wood, there would be fewer failures of crop. The more buds the pruner leaves, the better for the birds. With the barbarous practice of spur-pruning Gooseberry and Currant bushes, that is, shortening all the young shoots to two or three buds at the base, we cannot expect to get good crops of fruit. When, however, the bushes are grown against a trellis, fence, or wall, the only method that can be adopted to keep them in bounds is by spur-pruning. The Gooseberry succeeds to a greater degree in the north than in the south, the plant being adverse to much warmth. At Castle Eden we seldom miss a good crop of fruit. *W. Fulford.*

COOLING'S MATCHLESS BROCCOLI.—This is an excellent variety to grow for early spring cutting. It is self-protecting, has a pure white curd, large and close, and the plant is compact in growth, and perfectly hardy. It comes into use soon after Snow's Winter White. Planted alongside the latter variety, it proved itself to be the hardier of the two. Where I lived in Cornwall, Snow's Winter White was always grown to succeed Veitch's Self-Protecting, an arrangement which answered admirably. I have tried the same thing here (Cambridgeshire) three years in succession with very disappointing results, quite 80 per cent. of Snow's being killed by frost before they were ready for lifting and storing in a frame. For the future I shall grow more of Cooling's Matchless, and less of Snow's. The soil here is very heavy. *W. J. Snell, Cambridgeshire.*

PLANT BREEDING.—Having read with interest the various articles on the above subject appearing in the *Gardeners' Chronicle*, I have come to the conclusion that it would be better if writers would be more clear in their utterances on this subject, which would be more especially so to those who are not well versed in hybridisation, for example, the use of the terms "cross-breeding" and "hybridism," which by some of your correspondents are used as having two distinct meanings, when they are really synonymous, a state of matters which is rather confusing to beginners. Before starting to cross the flowers of one plant with pollen taken from another, it is essential to know to which genus they belong to, and whether they are self-pollinating or the cross-pollinating. I think one example of each of these two classes will suffice to explain my meaning. A common example of the self-pollinating plants is the Wallflower. Wallflowers are rarely cross-pollinated by insects, but come true from seed, yet they are easily pollinated by human agency. A common example of the cross-pollinating plants is the Antirrhinum, which will readily take on the pollen carried by insects from one flower to another. These two examples can be readily tested by sowing some seed of Wallflower which will invariably come true to the parent, and sowing some seed of Antirrhinums which it will be seen are all crosses from the parent. By these two examples it is necessary to ascertain whether the flowers we are going to cross will take on the pollen carried by insects, and if so we must isolate them, or take precautions that no other pollen, other than that which we put on, reaches the stigma of the flowers we are pollinating; otherwise we shall not know whether we or the insects have the credit for the crosses. If these precautions are taken, we shall then be better able to judge whether the natural crosses, or the crosses by carefully chosen flowers, produce the best results. I might dwell further on the methods of crossing, but I fear to trespass too much on your space. *A. McL. May.* [Cross-breeding is a general and comprehensive term; hybridisation a special application to the crossing of species only. ED.]

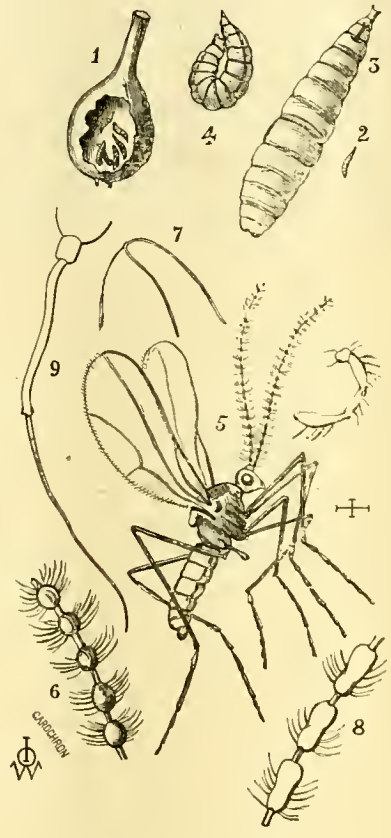

FIG. 57.—THE PEAR MIDGE.
1.—Young fruit with grubs.
2.—Grub, real size.
3.—Ditto magnified.
4.—Chrysalis.
5.—Perfect insect magnified.
6, 7, 8.—Details of structure.

PHEASANTS AND FLOWERS.—In the recent correspondence on this subject, I have not seen any mention of what I have found to be the best protection. I plant all bulbs too deep—say 8 in. to a foot—for pheasants or mice to reach them, and find they flower quite as well, though they do not increase so fast when flowering begins. I have for many years watered Crocuses, Dogtooth Violets, Anemones, Fritillarias, &c., with a strong infusion of quassia—an ounce of chips boiled in a gallon of water. A 2-gallon water-pot, with a very fine rose, will water many thousand flowers. It is better to apply it when the flowers are shut up, so as not to wet their inside. If this is used as soon as the first flowers show, pheasants will try them and reject them, and afterwards leave them alone. I observe that in the latest number of the Royal Agricultural Society's *Journal*, 2 ozs. of quassia-chips to a gallon of water is recommended as an insecticide. Perhaps this strength is even more effective against slugs, green-fly, and other pests, and would do no harm to flowers, but I warn gardeners not to try it for the Gooseberry-caterpillar. I once did so almost before the Gooseberries were past flowering, and the Gooseberries were so bitter as to be useless to the very end of the season. *C. Wolley Dod, Edge Hall, Malpas.*

ENTRIES AT THE ROYAL HORTICULTURAL SOCIETY.—As Honorary Secretary of the Orchid Committee of the Royal Horticultural Society, I am asked to impress upon exhibitors the necessity for observing the Society's rule that all plants intended to go before the Committee should be entered at the table before 11.30; and further, to ask them to assist by entering such plants at the earliest possible moment, either by sending the entries beforehand by post, or by handing them in immediately after they reach the Hall. Unfortunately, it has again become the common practice for exhibitors to leisurely stage their exhibits, and afterwards fill in the entry papers, so that just before 11.30 a number of entries are on hand which have to be copied into two books, and the exhibitors' cards to be filled in before noon, when the Committee meet. Much confusion is caused in this way, for at such a meeting as the last it is impossible to deal with the entries properly in the time. *James O'Brien.*

THE PEAR MIDGE.

(DIPLOSIS PYRIVORA.)

(FIG. 57.)

DURING the last few seasons the Pear gnat-midge has been very prevalent in gardens, and where it abounds steps should be forthwith taken to eradicate the pest, for when once it is allowed to spread, much vexation and disappointment is felt, hence the reason of drawing attention to the fact now. Where it was prevalent last season, much might have been done during the winter to stay its progress; and at the present time, if the affected trees of last season are now sprayed with petroleum emulsion once or twice before the flowering period, I believe an attack would be averted, as the insect pierces the flower-bud just before it expands, but probably this fact would escape the notice of an ordinary observer till the fruits began to drop. Now, by spraying the trees at this date with the emulsion or other insecticide, much good would be done; and on trees infested last year, this should certainly be carried out. I had several Pear trees badly infested last season, but I collected all the small fruits that fell and burnt them, and put quicklime on the soil beneath the trees during the autumn and winter. The ground was dug as deeply as it could be without causing injury to the roots.

The weaker trees seemed to be those mostly infested, and the worst were Marie Louise, Ne Plus Meuris, Doyenné Bossouch, and Jargonelle, which were all weak-growing trees, but now they are in robust health. Doubtless, some of our fruit pests are imported from abroad, as some Oranges indicated when examined some time ago. These were covered with a small scale insect in a living state; they resembled our ordinary oyster-scale (Mytilaspis pomorum), found on the Apple-tree bark, which gardeners do not regard as injurious—a mistaken idea. *W. A. Cook.*

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 24.—The Drill Hall, Buckingham Gate, Westminster, was very full of exhibits on the occasion of the ordinary fortnightly meeting of the Committees on Tuesday last. Orchids were particularly numerous, and there were some very choice novelties among them.

The ORCHID COMMITTEE sat for an unusually long time, and recommended awards, including two First-class Certificates and six Awards of Merit.

There were many groups of plants and flowers before the FLORAL COMMITTEE, but few novelties were submitted, and of these only one (a new variety of Iris from Miss WILLMOTT) was granted an award; but seventeen medals were awarded by this Committee, which is an unusually large number. A brilliant group of mollis Rhododendrons, shown by Messrs. R. & G. CUTHBERT, was probably the finest exhibit of these plants ever displayed in the Hall in the month of February, and reminded us of the magnificent collections of Rhododendrons that may be anticipated at the Quinquennial Exhibition that will shortly take place at Ghent.

The FRUIT AND VEGETABLE COMMITTEE had little to do, the exhibits consisting mainly of a collection of Apples from Mr. TAYLER of Hampton; a collection of preserved fruits from America; and some very fine Asparagus from the Duke of NORTHUMBERLAND'S garden at Syon House.

In the afternoon, the *personnel* of the Society was strengthened by the election of 100 new Fellows; and a lecture upon "The Use of Ether and Chloroform in the Forcing of Shrubs," by M. EMILE LEMOINE, was translated and read by the Secretary, the Rev. W. WILKS, M.A. The attendance throughout the day was inconveniently large.

Floral Committee.

Present: W. Marshall, Esq. (Chairman); and Messrs. Chas. T. Druery, H. B. May, Geo. Nicholson, R. Dean, Jno. Green, A. Perry, J. F. McLeod, Jno. Jennings, J. A. Nix, Jas. Hudson, W. Howe, G. Reuthe, C. R. Fielder, Chas. Dixon, C. J. Salter, Chas. Jeffries, H. J. Cutbush, R. M. W. Wallace, C. E. Pearson, Chas. E. Shea, W. P. Thomson, E. H. Jenkins, M. J. James, Chas. Blick, Geo. Paul, Harry Turner, and W. G. Baker.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, N., exhibited some large plants in 9-inch and 10-inch pots of Erica lusitanica (Codonodes), a tall-growing species, with tiny white flowers, longer than broad; also a few plants of the brightly-coloured Carnation, "America;" and a collection of forced Lilacs, amongst which we noticed the following varieties:—Mme. Abel Chatenay, double white; Countess H. de Choiseul, also double white, the individual flowers of larger size; Marie Lagraye, large single white; alba grandiflora, and Alphonse Lavallée, a double flower of the palest lilac colour, &c. The pretty new Polyantha Rose Lcuchtstern, pink with white centre, was shown in flower.

An unusual feature of these meetings was a large collection of Crocuses in pots, shown by Messrs. W. CUTBUSH & SON, Highgate, London, and Barnet, Herts. There were about 100 7-inch pots, and many of them contained nearly a dozen bulbs, sixteen varieties being represented. The white flowers included Grand Concurrent, Caroline Chisholm, Mont Blanc, and King of the Whites, the last-named variety being the best in habit of growth and effect. One of the very best of the deep purple-coloured varieties is named Baron Von Brunow, but it is resembled by King of the Blues, Albion Blue, purpurea grandiflora, Thackeray, &c. Othello is rather smaller in the flower, but richer in colour; Garibaldi is a pale striped variety, and Albion Striped and La Majestueuse are others of the same type.

Messrs. H. CANNELL & SONS, Swanley, Kent, made a large exhibit of Cyclamens, remarkable for the profuse show of flowers. Varieties were numerous, and included all the colours obtainable. The "Papilio" section was well represented (Silver Flora Medal).

A group of plants of Begonia Gloire de Sceaux, from W. M. CAZALET, Esq., Fairlawn, Tonbridge (gr., Mr. F. Cubberley), were remarkable specimens, some 4 feet high or more, strongly grown, and flowering abundantly (Silver Flora Medal).

Mr. JNO. R. BOX, West Wickham and Croydon, exhibited a group of Chinese Primulas, including florists' varieties, and some of the "pyramidalis" strain.

Lord ALDENHAM, Aldenham House, Elstree (gr., Mr. E. Beckett), made a delightful exhibit of Thyrsacanthus rutilans, showing about thirty plants; these had apparently been cultivated moderately cool, and were of sturdy habit. The inflorescences were numerous, and many of them 2½ feet or more long. It was a fine group, and represented good cultivation. A good group of Cyclamens was also exhibited from the same noted garden (Silver-gilt Flora Medal).

Messrs. R. & G. CUTHBERT, Southgate Nurseries, Middlesex, created the gayest effect by showing a great mass of hardy Rhododendrons (Azaleas), forced into bloom; they formed a bank of bloom on the table running along by the side of the wall, and occupied three-quarters of its length. The sloping bank of white, yellow, bronze, and red colour was relieved by the presence of a few light Palms and Acers, also by the inclusion of a few standard Rhododendrons, 4 ft. high or so, that bore masses of bloom above that formed by the dwarf plants. Many of the varieties were seedlings, but we noticed amongst others the following, all of which were exceedingly effective:—Comte de Quincy, yellow; President Carnot, also yellow, but more nearly approaching the tint of an apricot; Baron Edmond Latherlane, pale red; Comte de Gomer, clear vinous red, distinct and good; Anthony Koster, the unrivalled yellow variety, thoroughly well known; Purity, creamy-white, upper petal shaded yellow; lutea major, resembling Anthony Koster, but deeper in colour, and rather smaller in size; Ebenezer Pycke and Comte de Papadopoli, two of the reddish varieties shown, the latter being the better of them; Anna, pink and bronze colour; Prince Hendrick, very light yellow; R. Koster, Peter Koster, &c; a row of about thirty plants of the new variety Ramona, of the "rustica" section, staged at the last Temple Show, gave the group an attractive margin (Silver-gilt Flora Medal).

Mr. H. B. MAY, Dyson's Road Nursery, Upper Edmonton, exhibited some of the earlier flowering Clematises of the C. lanuginosa type, that flower upon short sprays from the old wood. Some of the varieties were Miss Bateman, pure white, very free; Nellie Moser, the new pink one, having deeper coloured stripes in the flower; Mrs. Crawshay, pale mauve colour, exceedingly large; Lord Wolseley, bluish purple, with reddish-brown bands; Fair Rosamond, white; also several very nice plants of the very free flowering C. indivisa lobata. These Clematises were subjected to very slight warmth about Christmas time, and not "forced" to any extent. The flowering plants appeared above a groundwork of choice Ferns (Silver Banksian Medal).

Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, exhibited plants in bloom of Daphne Fioniana, also Shortia galacifolia, the curious Chinese Shrub, Loropetalum chinense, with white thread-like flowers, figured in *Gardeners' Chronicle*, Feb. 3, 1883; some handsome seedling Clivias (Imantophyllum), and a group of plants of the hybrid Primula, from P. floribunda × P. verticillata, known as P. × Kewensis (Silver-gilt Banksian Medal).

Mr. ROBERT SYDENHAM, Birmingham, showed plants growing in a preparation known as Moss fibre, which is used in vases and requires no drainage material. The Narcissus and Daffodils shown had developed perfectly, and for ladies or amateurs especially, the fibre may be recommended in place of soil, as it is more cleanly.

Mrs. SOPHIA MILLER, 1, Campden Hill Road, Kensington, exhibited a collection of coloured drawings, some of them being of considerable size. The subjects particularly well presented were Tree-Pæonies, wild Roses, Foxgloves, and other well known garden flowers.

Messrs. HUGH LOW & Co., Bush Hill Park Nurseries, Herts, exhibited an effective group of forced shrubs and other plants. There were Viburnum Opulis (rather green in colour), varieties of Azalea indica and A. mollis, Staphylea colchica, Magnolia conspicua, Souvenir de Louis Späth, and other varieties of Lilac; Acacias cordata and Drummondi, &c. (Silver Banksian Medal).

A few nice plants of Thyrsacanthus rutilans were shown by Mrs. JOHNSTONE, Bignor Park, Pulborough (gr., Mr. E. Wickens), also some strongly-grown plants of Richardia grandiflora, &c.

Mr. GEO. MOUNT, of the Rose Nurseries, Canterbury, staged some very lovely Rose blooms, among which the varieties Mrs. Jno. Laing and Mrs. W. J. Grant were conspicuously good (Silver Banksian Medal).

A very nice double white Chinese Primula, named Southern Star, was shown by Mr. J. WEBSTER, South Street, Chichester.

Mrs. W. H. BURNS, North Mymms Park, Hatfield (gr., Mr. C. R. Fielder), exhibited some fine Violet blooms, which had been forced in the beds over which frames had been placed. There were La France, Luxonne, and De Parma (double).

Her Grace ADELINE DUCHESS OF BEDFORD, Woodside, exhibited a collection of fine Helleborus flowers in variety (Bronze Flora Medal).

Mr. G. REUTHE, Hardy Plant Nursery, Keston, Kent, exhibited a collection of hardy plants, including I. Tauri, and others of this section; also the new Saxifraga Grisebachi, &c. (Silver Banksian Medal).

Messrs. GEO. JACKMAN & SONS, Woking, exhibited Anemone pulsatilla alba, Iris sindjarensis, I. lumosa, and Erodium Pelargonifolium, a species from the Taurus Mountains, 3,000 feet above sea level, bearing extraordinary superficial resemblance to a Pelargonium. A number of other plants were included in the collection (Silver Banksian Medal).

Messrs. B. S. WILLIAMS & SON, Victoria and Paradise Nurseries, Upper Holloway, N., exhibited numerous flowers of forced Tulips, representing the choicest varieties for this purpose. Also a few Narcissus and Lachenalias.

Messrs. WALLACE & Co., Kilnfield Gardens, Colchester, had a collection of hardy plants in flower, such as Hepaticas, Anemone blanda, Iris histrioides, and the variety known as Major, &c. (Silver Banksian Medal).

Mr. THOS. S. WARE (1902), Ltd., Feltham, Middlesex, exhibited a group of forced Daffodils, and a number of hardy plants in flower, including species of Saxifraga, Cyclamen, Primula, and Iris, and a fine plant of Primula denticulata alba, under the name grandiflora (Silver Banksian Medal).

From Mr. K. DROST, Kew Nursery, Richmond, Surrey, came a small group of Azalea mollis in variety, and some bushes of well flowered white Lilac, furnished with foliage. The group had an edging of Funkia ovata variegata, very suitable for its contrast with the bright tints of the Azaleas (Bronze Flora Medal).

The usual group of flowers in season was shown by Messrs. BARR & SONS, King Street, Covent Garden. We remarked among other subjects plants of Chionodoxa sardensis, deep blue, and very pretty; a panful of Iris reticulata, Narcissus Harbinger, the bloom having a yellow corona, and a paler perianth; it is small and early. Helleborus in variety, Anemone-Rose de Nice, a number of Saxifrages bedded out; Primula obconica kermesina, of a nice bright tint; Hepaticas, Cyclamens, a large-flowered variety of Saxifraga Burseriana, Gerbera Jamesoni from seed, Chionodoxa gigantea, said to be a seedling form, flowers of a light blue tint, passing into white at the centre.

Mr. JOHN ODELL, florist and market-gardener, Colham Green, Hillingdon, showed Primula sinensis Duchess of Fife, of a pale pink tint, having a good truss and pips, and compactly growing foliage; besides these was an excellent exhibit of Cyclamens in all shades of colour, dwarf, well grown and flowered Silver-gilt Banksian Medal).

Mr. JOHN RUSSELL, Richmond Nurseries, Richmond, Surrey, showed largely in a group placed on the floor near the end entrance to the Hall, forced plants of Spiræa confusa, Wistaria sinensis, Cerasus Watereri, Prunus sinensis, &c.; a bright line of colour being contributed by Azalea mollis in variety. There were plants of Staphylea colchica very well flowered, Lilac Souvenir de Louis Späth, and L. Marie Lagraye, very dwarf and floriferous (Silver Flora Medal).

We remarked some samples of the "Charteras" Seedling Protector. This simple invention consists of two arched pieces of wire, crossing one another transversely, which are fastened together at the top. At intervals along these hoops holes are punched, through which black thread is run. This forms a cage which can be readily placed over the plant or seeds it is desired to protect, the legs being pushed a few inches into the soil. Birds attacking the plants do not notice the black thread, touch it unknowingly, and are at once startled away.

AWARD OF MERIT.

Iris persica variety.—Miss WILLMOTT, Warley Place, Great Warley, Essex, exhibited a variety of I. persica, obtained from a cross between this species and the variety purpurea. The flowers were 2½ inches high, purple, with darker purple blotch on lip; throat white, with a yellow line through it (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the chair); and Messrs. Jas. O'Brien (hon. sec.), de B. Crawshay, R. B. White, F. A. Rehder, F. Wellesley, J. Douglas, E. Hill, F. W. Ashton, A. A. McBean, H. J. Chapman, J. W. Potter, M. Gleeson, J. W. Odell, W. H. White, W. H. Young, J. Charlesworth, H. Little, H. A. Tracey, W. Boxall, and J. Gurney Fowler.

There was a very large display of Orchids, Dendrobiums predominating, some fourteen groups being staged, and about fifty entries were placed before the

Committee. The exhibits were so numerous, that only the more notable subjects can be enumerated.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), had the largest group, and received a Silver-gilt Flora Medal. In his group a large specimen of the fine Cattleya Trianæ "Our King" was an effective object. Of the Dendrobiums, D. nobile, Pitt's variety, was likewise noteworthy, as well as D. n. Ballianum, D. n. nobilius, and other forms. Among the hybrids, Dendrobium × pallens, D. × Apollo grandiflorum, D. × Owenianum, and other hybrids, were noted; and there was a fine selection of Odontoglossums, Cypripediums, Epidendrum × Endresio-Wallisii varieties, &c.

Messrs. J. CYPHER & SONS, Cheltenham, were awarded a Silver-gilt Flora Medal for an extensive group of very well grown and profusely flowered Dendrobiums, the forms of D. nobile and the crosses of it in almost bewildering numbers. A few of the finer ones were D. × Apollo grandiflorum, and D. × A. album; D. × Virgil, D. × Rubens grandiflorum, D. × Schneiderianum, D. × Ellerianum, D. nobile rotundiflorum, and about a dozen other distinct forms; Cypripediums, Sophronitis, Masdevallias, &c.

Captain G. L. HOLFORD, Westonbirt, Tetbury, exhibited some rare species, in which the very beautiful Odontoglossum × Adrianæ "Lady Evelyn Grey," a large, white flower, in shape very near to O. crispum, and evenly spotted with purple, was one of the finest; Lælio-Cattleya × Warnhamensis, Westonbirt variety, with orange-yellow coloured flowers and ruby lip, was a great improvement; Dendrobium × Wiganianum xanthocheilum, a grand plant of D. primulinum, with about one hundred flowers; Cattleya × Enid, and Cypripedium × Captain Holford were observed (Silver Banksian Medal).

Sir TREVOR LAWRENCE, Bart., Burford (gr., Mr. W. H. White), showed a pretty group of Burford hybrid Dendrobiums, including varieties of D. × melanodiscus, Rainbow, Juno, Dido, &c.; a good Cattleya Trianæ Backhousiana, two plants of Spiranthes colorata maculata, &c., were noted (Silver Banksian Medal).

NORMAN C. COOKSON, Esq., Oakwood, Wylam-on-Tyne (gr., Mr. H. J. Chapman), secured a Silver Banksian Medal for a small but select group, in the centre of which was a very remarkable specimen of Phaius tuberculosus (simulans) in robust health, and furnished with five robust flower-spikes (Cultural Commendation); Cypripedium × Helen, Oakwood variety, with yellowish flowers spotted with purple; a pretty white Dendrobium nobile, having a pale lavender-rose coloured disc; two remarkable Dendrobiums obtained by crossing D. nobile burfordiense and D. n. Cooksoni the one being handsomely striped with purple, resembling an improvement on D. n. jaspideum (Lindenia), and the other having elongated lower sepals marked like the lip; Phaius × Clive (see Awards), and P. × Norman, and a fine specimen of the best large-flowered Odontoglossum crispum with a strong spike, bearing thirteen magnificent flowers, all of which were equally well developed.

R. G. THWAITES, Esq., Streatham (gr., Mr. J. M. Black), was awarded a Silver Flora Medal for a fine group containing a very large number of Dendrobiums. The number of varieties in this group was remarkable, and even the smallest plants were finely flowered. In addition to the best forms of D. nobile, D. × splendidissimum, and their crosses, there were some pretty varieties that one rarely meets with, such as D. × Isis (moniliforme × hercoglossum), good flowers of D. × Venus, &c. There were noted besides these, good examples of D. nobile album, Sophronitis, &c.

Messrs. JAS. VEITCH & SONS, Chelsea, showed a select group of principally crosses, including the handsome Cypripedium × Euryades var. guttatum, the new deep scarlet-coloured Epidendrum × Delphi (pristes, Rchb. f. × O'Brienianum), varieties of C. × Leonidas, Lælio-Cattleya × Pallas, Lælia × Mrs. Gratrix, &c. (Silver Banksian Medal).

FRANK A. REHDER, Esq., Gipsy Hill (gr., Mr. Norris), was awarded a Silver Banksian Medal for a very good selection of Dendrobiums and other Orchids. Among the forms of D. nobile, two good specimens of the best variety of D. nobile album were noted; also D. × pallens, D. × Magda, &c.

Messrs. SANDER & SONS, St. Albans, secured a Silver Flora Medal for a good group. Among the Cypripediums C. × Beechense was Sander's variety, a large flower of great merit, having beautiful markings; C. × Annie Measures, and C. villosum "Golden King," were good, and the varieties of Phaius, Dendrobiums, &c., were effective.

Messrs. J. & A. A. MCBEAN, of Cooksbridge, secured a Silver Flora Medal for a group consisting chiefly of Odontoglossums. The best was the spotted O. crispum "Grace Ruby" (see Awards), although other specially good forms were observed, and notably a large and richly coloured variety of O. × Ruckerianum; likewise some bright Epi-phronitis × Veitchi, Sophronitis grandiflora, Cymbidium eburneum, Dendrobiums, &c.

Messrs. CHARLESWORTH & CO., Heaton, Bradford, were awarded a Silver Banksian Medal for a select group, in the centre of which was a magnificent, broad-petalled, heavily blotched Odontoglossum crispum; besides O. luteo-purpureum Vuylstekeanum, Lælio-Cattleya × luminosa, L.-C. × Digbyano-Mendeli, the finely coloured Cattleya Trianæ Beyrodtii, Odontoglossum × Rolfeæ, Cypripedium × Leysenianum, C. × Laurebel, Cœlogyne sparsa, &c.

Mrs. HAYWOOD, Woodhatch Lodge, Reigate (gr., Mr. C. J. Salter), staged a group of finely-flowered crosses of Dendrobium, three of which secured Awards (see Awards).

DE B. CRAWSHAY, Esq., showed a small group with two varieties of white Lælia anceps Hollidayana, the large-flowered Odontoglossum Rossii "Lionel Crawshay," and the very beautiful Odontoglossum crispum aureum Rosefieldiense, which had previously secured a First-class Certificate (Silver Banksian Medal).

Messrs. HUGH LOW & Co. showed a good group, in which were fine forms of Cattleya Trianæ, C. T. Mrs. T. Miller Crook, being a beautiful lavender-tinted flower, with delicate rosy-lilac lip. The Dendrobiums included D. Jamesianum, D. crassinode, D. Boxalli, D. Wardianum, D. aureum, D. aggregatum, &c.; and Lycaste × Cappei, and other showy things were staged (Silver Banksian Medal).

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. Gilbert), showed Cypripedium × Angelus superbus, C. insigne Gilberti, Lælio-Cattleya × Charlesworthi "Westfield variety," and L.-C. × Gottoiana "Mrs. Douglas."

J. BRADSHAW, Esq., Southgate (gr., Mr. Whitelegge), showed Cattleya Trianæ Fairy Queen, C. T. cœrulea, Lælio-Cattleya Hon. Mrs. Astor var. Yellow Prince, and Lycaste Skinneri Beauty.

HENRY LITTLE, Esq., Baronshalt, Twickenham (gr., Mr. Howard), showed Lælio-Cattleya × Captain Percy Scott, pretty and fragrant.

Messrs. STANLEY, ASHTON & Co., Southgate, sent Odontoglossum × Wilckeanum Southgatense, and a very dark form of O. × loochristyense.

Messrs. D DOWELL & SON, horticultural sundriesmen, Ravenscourt Avenue, Hammersmith, showed a good selection of pots suitable for Orchids, from the tiny first seedling pot upwards; also potting material, &c.

Awards.

FIRST CLASS CERTIFICATE.

Zygopetalum crinitum cæruleum, from Messrs. CHARLESWORTH & Co., Heaton, Bradford.—One of the handsomest Zygopetalums of its class, either imported or hybrid, and infinitely superior to the original form, which bore that name. Sepals and petals emerald-green, barred with brown. Lip large, broad, and flat; pure white, with fringed lines of a bright violet colour.

Odontoglossum crispum Grace Ruby, from Messrs. J. and A. A. MCBEAN, Cooksbridge.—Flowers large, and of the best form, white, evenly spotted with purple spots; petals fringed.

AWARDS OF MERIT.

Dendrobium × *Ophir* (signatum × aureum), from Capt. G. L. HOLFORD (gr., Mr. Alexander).—Flowers formed like those of a large D. aureum; cowslip yellow. A very distinct hybrid.

Dendrobium × *melanodiscus Sunray* (Findlayanum × Ainsworthi, Woodhatch var.), from Mrs. HAYWOOD (gr., Mr. C. J. Salter).—Sepals and petals white, tipped with rose. Disc of lip maroon, with yellow band.

Dendrobium × *Salteri* (splendidissum grandiflorum × Findlayanum), from Mrs. HAYWOOD (gr., Mr. C. J. Salter).—A very pretty hybrid, with flowers bearing some resemblance to D. × Sibyl, and of the same bright rose tint, with white bases to the segments. Disc of the lip orange, with claret base.

Dendrobium × *splendidissimum*, *var.* "*Mrs. Haywood*," from Mrs. HAYWOOD.—A very large flower, heavily marked with purplish-lilac, and with a maroon-purple disc to the lip.

Phaius × *Clive* (Norman × tuberculosus), from NORMAN C. COOKSON, Esq. (gr., Mr. H. J. Chapman).—This is a fine P. × Norman, with the expanded lip of P. tuberculosus. Sepals and petals light yellow, with a slight rose tint on the surface; base of the lip broad, and heavily blotched with chocolate-purple; front whitish, blotched with a deep rose tint, and crest yellow.

Dendrobium × *Wiganianum album* (nobile album × Hildebrandi), from R. G. THWAITES, Esq., Streatham (gr., Mr. J. M. Black).—A clear white hybrid, most nearly approaching D. Hildebrandi in shape.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq., Chairman; and Messrs. Jos. Cheal, H. Balderson, W. Bates, S. Mortimer, Alex. Dean, E. Beckett, H. J. Wright, G. Kelf, J. Jaques, H. Somers Rivers, R. Parker, G. Reynolds, F. Q. Lane, G. Wythes, W. Poupart, Jas. Gibson, and O. Thomas.

Mr. GEO. WYTHES, exhibited from the Duke of Northumberland's garden, Syon House, Brentford, a bundle of forced Asparagus from an open bed, the forcing material used having been tree leaves. The growths were exceedingly sturdy and big, and were awarded a Cultural Commendation.

Miss C. E. MARTIN, Willow Brook, Auburn, New York, U.S.A., showed a considerable quantity of preserved fruits in patent stoppered bottles. Some of them were preserved in syrup containing a small quantity of spirit, as the "Brandy Peaches," &c. Others were similar to the French fruits preserved in syrup, and further samples were jam made from Strawberries, Blackberries, Tomatos, &c. Generally, the preserves were considered too sweet for the English taste (Vote of Thanks).

Mr. W. TAYLER, Osborne Nursery, Hampton, Middlesex, showed a small collection of excellent Apples in a first-class state of preservation. Among them Lane's Prince Albert, Annie Elizabeth, a superior sample, Bismarck, Gascoigne's Scarlet, Ribston Pippin, Cox's Pomona, Dutch Mignonne, Newton Wonder, Northern Spy, Pine Golden Pippin; and of Pears, Chaumontel, Catillac and Uvedale's St. Germain (Silver Banksian Medal).

The Lecture.

THE USE OF ETHER AND CHLOROFORM IN THE FORCING OF SHRUBS.

At the afternoon meeting, a considerable audience had the pleasure of hearing a paper on the use of "Ether and Chloroform in the Forcing of Shrubs," written by M. Emile Lemoine, and translated from the French by the Rev. W. Wilks, M.A., Secretary, who also read the paper. M. Lemoine commenced by referring to the original experiment that Claude Bernard made with ether and chloroform in order to prove that the protoplasm of vegetables is essentially the same as that in animals. Both are affected similarly by anæsthetics. The sensitive plant when subjected to the fumes of ether, became insensible, and would no longer droop, when touched, as it did before, but, when removed from the influence of the anæsthetic, the shoots and leaves slowly regained their normal sensitiveness.

In 1890, Dr. Johannsen, professor of vegetable physiology at Copenhagen, commenced experiments with a view to ascertaining the effect of ether in respect to forcing the plants into flower; and on November 17, 1893, Dr. Johannsen showed for the first time, before the Academy of Sciences, at Copenhagen, a Lilac that had been forced by means of etherisation. The Professor had noticed that if a tree lost its leaves in summer, the buds upon that tree would occasionally, open in the autumn, although similar buds upon trees that retained their leaves were ripening and going to rest. This led to the statement of a theory in which the repose or resting period in trees was divided into three stages:—(1) the initial stage, when the development that has been going on is diminishing; (2) complete rest, when the development has ceased; (3) final period, during which development is in process of recommencing—the rest now being made compulsory by the conditions of air and temperature to which the plant is exposed. In the case of the Lilac, the first stage occurs naturally in August and September, complete rest is reached at the end of October, and the final stage commences at the end of December. It was only after the final stage of rest had commenced that shrubs could be forced into flower satisfactorily. Dr. Johannsen found that these processes could be forwarded materially by the use of ether, which has a similar result upon the plants to that which follows if the leaves are removed early, as remarked above, namely, the development of abnormal and precocious growth. By etherisation, the third stage may be reached by the beginning of October, or three months earlier than under normal conditions.

Proceeding to describe the process of etherisation, the lecturer said the plants should be put into a box that can be hermetically sealed, in dry sand, and the interior of

the box, as well as the plants themselves, should be dry, so that they will not absorb the ether. The temperature of the air in the box should be 62° to 66° Fahr., but the higher the temperature, the less quantity of ether is required. Under the lid of the box there should be a small bottle, into which the ether may be poured through the lid. It is important that the ether should be applied from the top, because being heavier than the atmosphere, it falls to the bottom by gravitation. The operation should be done during the daytime, and no light, or even a cigar, must be permitted to be brought near to the box, because ether fumes are exceedingly inflammable, and when mixed with air become dangerously explosive. The quantity of ether required is approximately about 300 grammes weight for every 100 cubic mètres of air, and the plants may be subjected to the treatment for a period of 48 hours. It may be advantageous to repeat the process with the same plants after a few days. Pure sulphuric ether was used, which boils at 95° Fahr. The plants are removed to a cool house, and the forcing process afterwards is simple. Plants of Lilac Charles X., etherised early in August by Dr. Johannsen, were in full flower in the middle of September.

M. Lemoine proceeded to say that the German florists subsequently took an interest in the subject, and one of them from Hamburg went to Copenhagen, and studied Dr. Johannsen's experiments there. It had been admitted by these florists that the great firms would be obliged to use ether for early forcing, especially so as the economy of fuel in forcing etherised plants covers the cost of etherisation itself, and also because Lilacs may be forced into bloom in eighteen days after removal to a warm atmosphere. One of the principal firms in Hamburg had proved (1) That etherised Lilacs force most rapidly; (2) Some varieties that are known to be difficult of forcing may be forced after etherisation as successfully as the variety Charles X.; (3) That some Lilacs not specially prepared for forcing had been lifted from the open, etherised, and subsequently forced with capital results.

M. Lemoine described experiments that had been made in France last year with chloroform as well as ether; and although it is probable that chloroform may be used in some cases in place of ether, the results were not altogether satisfactory or conclusive. They, however, appeared to show that the amount of chloroform which was used was excessive, and that its influence is of much greater degree than that of ether, probably to the extent of three parts in four.

Reference was next made to the results obtained by Mr. Jannech, a nurseryman at Dersingham, Norfolk whose experiences have been "quite beyond anticipations." It is obvious that the importance of the vapour of ether in relation to the forcing of shrubs is only applicable to very early forcing, that is, at a season previous to Christmas, for after the commencement of January, when the plants have reached the third stage of rest described by Dr. Johannsen, forcing by ordinary means may be done successfully. M. Lemoine, after again urging the importance of making the ether chamber air-tight, and of doing the operation during daylight, in the absence of any artificial light whatever, proceeded to discuss the probable reasons for the effect upon plants, that it is now known ether is capable of exercising. It was certain that the vital powers of the plants became latent under its influence, and repose or rest became deeper. It is also known by the cultivator that the deeper the rest to which a plant is driven, the more quickly may the vital powers be brought again into life, under proper conditions.

It had been said that ether acted as an anæsthetic and abolished sensation; also that it acted in a similar manner to frost. It seemed pretty certain that ether, like frost, was capable of expelling water from the tissues of plants, and it might be asked if the effect of ether or chloroform upon a plant was due to their drying power? Such an effect would be similar to that which follows extreme cold or great drought, and everyone knows that an alpine plant hidden away by a covering of snow, springs into growth, and flowers in an amazingly short space of time after exposure to the sunlight. If the ether acted as a stimulant in removing the water from the plants, then it was just possible that the same results might be obtained from the use of less dangerous materials, as chloride of potassium, or quicklime.

[In connection with the above notes of M. Lemoine's lecture, we may direct the attention of our readers to an article in the *Gardeners' Chronicle* on March 1, 1902, in which the results of experiments conducted by M. Franz Ledien, of the Dresden Botanic Garden, are fully described, and where practical information is given to cultivators who desire to etherise Viburnums, Azaleas, Deutzias, Lilies of the Valley, Hyacinths, Prunus, &c. See also *Gardeners' Chronicle*, November 22, 1902, p. 379, where reference is made to Lilacs that were etherised and forced in the nursery of Mr. Harms, of Hamburg, and where we appealed to our own market-gardeners to adopt, or at least try, this system. Also *Gardeners' Chronicle*, December 20, 1902, where attention is drawn to a pamphlet upon the subject by Mr. Albert Maumene (Paris: Rue de Grenelle, 84 bis); and *Gardeners' Chronicle*, December 27, 1902, p. 475, where the satisfactory experiences of an American florist may afford useful hints in the actual work of etherisation. ED.]

DEVON AND EXETER GARDENERS' ASSOCIATION.

FEBRUARY 4.—The paper read at the meeting of this Association on the foregoing date was by Mr. R. Hodder, gr. at Ponsonby, Torquay, the subject being entitled "A Stroll in the Garden."

In a pleasant, gossipy style, the lecturer imparted much interesting information, bearing on the literary as well as the practical side of English gardening. He strongly advocated every house in the country, however small, having its little garden, for the average Englishman loves a garden. *A. H.*

BRISTOL AND DISTRICT MUTUAL IMPROVEMENT ASSOCIATION.

THE fortnightly meeting of this association was held at St. John's Rooms, Redland, on Thursday evening, Mr. E. Binfield, Old Sneyd Park, occupying the chair. The subject of the discourse for the evening was "Melons and Cucumbers," introduced by Mr. Collier of the Cardiff Gardeners' Association. The lecturer detailed the best methods for cultivation, including time for sowing the seed, training, stopping, tying, and general treatment. He also described the insect pests and diseases to which the plants are liable, and the means for their eradication and prevention. Soils and composts also received his attention, and were fully explained. A good discussion followed Mr. Collier's lecture. *H. K.*

SHROPSHIRE HORTICULTURAL

FEBRUARY 11.—The annual meeting in connection with the Shropshire Horticultural Society, was held at Shrewsbury, on the above date. The Mayor of Shrewsbury (Mr. H. H. Southam) presided, and among those also present were:—Mr. E. C. Peele (chairman of Committee), Major-General the Hon. W. H. Herbert, the Rev. W. Leeke, Colonel Robinson, Messrs. Adnitt & Naunton (joint Hon. Secs.), Mr. James Vine (Treasurer).

The report of the Committee stated that the show last year was favoured with splendid weather on the two days in August, and the result was a record attendance of visitors, as evidenced by the fact that the total receipts from all sources amounted to the large sum of £5,001 15s. 5d., being £254 19s. 4d. in excess of the previous year, which up to that date was the Society's largest income, viz., £4,746 16s. 1d. It has long been the ambition of the Committee that the Society's total returns should reach £5,000, and therefore it is with a degree of pride that the success attending the twenty-eighth show has placed them in a position to announce that such a sum has at last been realised.

Mr. Vine presented the statement of accounts, which showed that the profit on the summer show was £873 18s., while the total profit for the year amounted to upwards of £1,000, compared with £827 10s. 3d. the previous year. During the past year the Society voted from their funds several large sums, including £300 for the laying-out of the Abbey Public Gardens. They also expended £184 8s. 7d. in the improvement of the river banks in the vicinity of the Quarry, making the total which the Society have expended for this one purpose £1,500. Since 1878 the Society have voted to various deserving objects no less than £6,953.

On the proposition of Mr. E. C. Peele, seconded by Mr. Salt, Lord Forester was elected President of the Society for the ensuing year.

Mr. W. Thorn (superintendent of the Joint Railway Companies) said it would probably interest those present to learn that, apart from ordinary trains, on the occasion of the last show there were between fifty and sixty specials, comprising 869 coaches, no fewer than five miles of rails being required to stable these coaches during the day. He would like to disabuse their minds of the idea that when the new station was completed the difficulties of the railway companies would be at an end. So far-reaching was the popularity of the Shrewsbury floral fête, that the Honorary Secretaries were always anxious to increase the number of excursions and tap new ground; and last year between 3,000 and 4,000 people were brought from a new district.

REDHILL, REIGATE, & DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

FEBRUARY 17.—This Society held its fortnightly meeting at Mutton's Hotel on the above date, Mr. BOUND being in the chair. Ten new members were elected. The chairman introduced Mr. Duncan, of South Park, Reigate, who gave a lecture on "Insect Pests of the Garden." The lecture was well illustrated with lantern slides.

WYLAM AND DISTRICT MUTUAL IMPROVEMENT.

FEBRUARY 19.—The fortnightly meeting of the above Society was held in the Institute, Wylam, on the above date, presided over by Mr. H. J. Chapman (the Chairman). A paper was read by Mr. Paxton, of Prudhoe Hall Gardens, in which the various methods of propagation, cultivation of Dahlias, both for show and cut flower purposes, and of storing and preserving the tubers were discussed.

At the next meeting, March 5, Mr. N. C. Cookson, of Oakwood, has promised to exhibit his Orchid paintings, and Mr. Chapman will give a lantern-illustrated lecture on Cypripediums.

GLOUCESTERSHIRE ROSE.

THE annual meeting of this Society was held in Gloucester last week. The Treasurer had to report a deficit on the year's working of £9 12s. 6d; while the members had to deplore the resignation of the Hon. Secretaries, the Rev. Thomas Holbrow (who has removed from the neighbourhood to Corbridge-on-Tyne), and Mr. T. A. Washbourn; but the services of both these gentlemen, who have done so much for the Society, will be retained on the Committee. Owing to the unpropitious weather experienced on the show days for the past few years, a suggestion was made that the exhibition should be held in one of the large assembly halls in the city; but that the next exhibition be held in the Spa Cricket Field as usual. The resolution was carried.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 19.—There was a capital display of plants on the above date, the room being well filled.

Messrs. J. CYPHER & SONS had a group of plants to which a Silver Medal was awarded, that consisted chiefly of fine varieties of Dendrobiums, the best being D. × Apollo var. magnifica, a flower of good size and substance (Award of Merit); D. nobile var. rotundiflora, a good form (also received an Award of Merit); Cattleya Trianæ var. "Arle Court" was also submitted to the committee. Dendrobium × Cybele var. nobilior, and D. × Ellerianum, a natural hybrid, with a large proportion of D. heterocarpum in its composition, were also noticeable, as were also some plants of Odontoglossum Roezlii.

W. THOMPSON, Esq., Stone (gr., Mr. Stevens), staged a small group, consisting principally of Odontoglossums; and a nice form of Odontoglossum × Harryano-crispum var. roscum was given an Award of Merit. There was a very good specimen of O. Pescatorei, with eight flower-spikes, and a probable aggregate of about four hundred flowers. A large and well spotted form of O. Pescatorei, O. × aspersum, O. × Wilckeanum, and O. × Adrianæ var. Starlight, were also found in this group, which was awarded a Bronze Medal.

Messrs. A. J. KEELING & SONS, Westgate Hill, near Bradford, exhibited Cypripedium × M. de Curte Keeling's var.

STANLEY, ASHTON & Co., Southgate, displayed a choice collection of cut flowers, all Odontoglossums (the rules of the Society forbid the exhibition of cut flowers except when severe weather prevails). A Vote of Thanks was awarded. In the collection O. × Wilckeanum var. Southgatense stood out prominently from the others.

E. O. SCHNEIDER, Esq., Whalley Range (gr., Mr. Hunt), staged a few well-grown Dendrobiums, a fine piece of D. nobile receiving a Cultural Certificate; and there was shown a well-flowered plant of D. × Schneiderianum.

S. GRATRIX, Esq., Whalley Range (gr., Mr. Cypher), exhibited Lælio Cattleya × Jeanette, a cross between L.-C. × Gettoiana × Cattleya labiata var. Jeanette. This plant produces an intensely dark crimson-purple bloom, the labellum being of a deeper tint. An unanimous First-class Certificate was voted to this plant. From the same collection Odontoglossum crispum var. "Gipsy Queen" received an Award of Merit. The flowers are very chaste and well formed, with a large dark blotch on each sepal.

R. LE DOUX, Esq., West Derby (gr., Mr. Davenport), received an Award of Merit for Masdevallia × Rustoni, a cross between M. ignea × M. racemosa var. Crossii.

JOHN COWAN & CO., LTD., Gateacre, received a Bronze Medal for a group of plants, amongst which were some pretty crosses of Odontoglossum, and a distinct form of Dendrobium Wardianum, called aureum, the flower distinct, and possessed segments of a bronze tint. The committee desired to see it at a later stage of its flowering.

J. LEEMANN, Esq., Heaton Mersey (gr., Mr. Edge)' sent four very choice Odontoglossums. The four were of such excellence that possibly full justice was not done to all of them. O. crispum var. "Marie" was voted a First class Certificate; it is a fine, round flower, and very evenly marked with small spots. O. crispum var. Mrs. Peeters, considered by some who saw it to be the best of the quartet, was voted an Award of Merit; this flower is of the bluish lilac type, and the colour which suffuses the entire flower is rather more prominent at the back than at the front; the petals reflex towards the points, and possibly this fact detracted somewhat from the character of the flower. If the Committee erred in this case, it was on the ungenerous side. O. crispum var. Francoise, another good spotted form, received an Award of Merit. O. crispum var. Ella was also shown. A Silver Medal was voted for the collection.

W. DUCKWORTH, Esq., Flixton (gr., Mr. Tindall), staged a bright-looking group of Dendrobiums, consisting of about thirty distinct forms of hybrids and species. A Silver Medal was awarded.

Mr. A. A. PEETERS, Brussels, exhibited a few good crosses of Cypripediums, two forms of C. × aureum being worthy of note. A Bronze Medal was awarded.

Mr. J. ROBSON, Altrincham, received a Silver Medal for a group of plants; some good Odontoglossums and Cattleya Trianæ being prominent therein. Awards of Merit were voted to Odontoglossum crispum var. compactum and Cypripedium × Euryades, Robson's var.

Messrs. SANDER & SONS, St. Albans, staged a choice group of Orchids, for which a Silver Medal was awarded. Several fine plants in different varieties of Phaius × Marthæ, were worthy of note; P. × M. var. aurea, P. M. var. superba, P. × Normani var. striata, and P. Normani var. nigrum, were all plants worthy of a place in any good collection; Odontoglossum × Wilckeanum var. Fascinator, was a fine form.

Mr. S. ALLEN, Sale, staged a collection of Dendrobium Wardianum, Cœlogyne cristata, Cypripedium villosum, &c., and was voted a Bronze Medal. *P. W.*

CHESTER PAXTON.

FEBRUARY 21.—A meeting was held in the Grosvenor Museum on the above date, Mr. Wynn in the Chair, when Mr. J. Taylor, of Colwyn Bay, gave a lecture on "The Out-door Culture of the Vine." In the course of his remarks, Mr. Taylor said there were many localities in Cheshire and North Wales where Vines could be profitably cultivated out-of-doors, provided they were planted on a south or south-west aspect, on good loamy land with a dry subsoil, and proper cultural attention afforded them. Apart from the utilitarian aspect of Vine culture out-of-doors, Mr. Taylor said it was of a much more ornamental character than many plants at present seen on garden and cottage walls, and he advised his hearers very strongly to give it a trial, if only on a small scale. An interesting discussion followed.

GLOUCESTERSHIRE ROOT, FRUIT, AND CHRYSANTHEMUM.

THE annual meeting of this Society was held in Gloucester on Saturday, when a favourable report was submitted to the members. Mr. W. Priday was re-elected chairman, as he has been for very many years in succession.

The balance in hand (£4) 3*s.* 6*d*) is the largest in the Society's records. The Secretary, Mr. Sydney S. Starr, was re-elected, and announced that as the result of negotiations, Messrs. Webb & Sons, and Messrs. Sutton & Sons were again offering all their old prizes, free from the restrictions which prevented their acceptance last year. These prizes represented something like £35.

The Society are offering in the Chrysanthemum and other classes some £10 more in prizes, and a number of additional Awards are offered this year by local firms and private persons. November 9 was fixed for holding this year's exhibition.

ANSWERS TO CORRESPONDENTS.

BLISTER ON PEACH-LEAVES: *W. B. S.* We do not know of any means by which this disease of the Peach can with certainty be prevented from attacking the foliage. De Bary (see the *Gardeners' Chronicle* for July 31, 1875) in an article on this minute fungus, Ascomyces deformans, by W. G. Smith, is quoted as describing and figuring it "as living in an early stage inside the leaf among the cells, and at length only emerging to perfect itself on the exterior." This seemed to Mr. W. G. Smith only reasonable. Probably sulphide of potassium (liver-of-sulphur) applied at the rate of ½-oz. in one gallon of water as soon as the leaves unfold, would destroy the spores that have alighted on them, and another application after the fungus manifests itself on the leaves would destroy it. But the only apparently efficient means of overcoming the pest is to remove every affected leaf, and forthwith destroy by fire.

BOOKS: *F. Hansen.* A manual on *Peaches and Nectarines Indoors and Under Glass*, by the late D. T. Fish, price 1*s.*, is published by Mr. Upcott Gill, 170, Strand, London, W.C.

CATTLEYA-LEAF DAMAGED: *E. D.* It is not a fungus which has caused the damage to the leaf. You state that the leaf was from an imported plant, and it is most likely that the cellular tissues got damaged in transit, or became so dried up that only part of them could be re-established when the plant was started into growth; the consequence was, that the surface of the leaf decayed in patches, which became confluent where the damage was greatest. Sometimes leaves will go in that way when the plants are so placed that the direct heat from the hot-water pipe gets to them; in such cases it is the tissues which decay, and the damage is not begun either by fungus or insects.

COAL-ASHES IN POTTING SOIL, &c.: *Pinkie.* A small quantity would render the stiff loam porous, and the better able to part with its moisture and admit the air. Sift it in a ¼-inch meshed sieve before mixing it with the soil. We cannot tell you by what insect the eggs sent were deposited.

CORRECTION: *Cypripedium* × *Angus.* This showy hybrid, mentioned in the *Gardeners' Chronicle*, Feb. 14, p. 100, was printed C. × Argus, in error.

CUCUMBER DISEASE: *Constant Reader.* The material sent is not sufficient.

HYBRIDISING AND CROSSING ORCHIDS: *H. W. J.* We know of no work dealing exclusively with this subject. F. W. Burbidge, in his book, *The Propagation and Improvement of Cultivated Plants* (W. Blackwood & Sons, Edinburgh and London, 1876), gives a good deal of useful information about the matter.

NAMES OF FRUITS. We have had the misfortune to get the Apples from our three correspondents, *J. C.*, *J. S. Upex*, and *A. B.*, mixed. Doubtless they will readily recognize them by description given. The large Apple with orange cheek is Harvey's Wiltshire Defiance. The green specimen is Duke of Devonshire. The small yellowish-brown russety Apple is Ashmead's Kernel.—*C. W. Strickland.* 1, Newtown Pippin; 2, Bedfordshire Foundling.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*R. C., Stanmore.* R. Nobleanum.—*E. D.* Odontoglossum maculatum. The bulbs and leaves are longer and more upright than those of Odontoglossum Rossii, and of a lighter green. You could easily separate the species by those tests.—*A. Urquhart.* Rhododendron dauricum. —*M. P. E.* 1, Abies Lowiana; 2, Pittosporum tenuifolium; 3, Abies amabilis; 4, Buxus balearica; 5, Thuya occidentalis; 6, Cupressus, we cannot tell without the cones.—*Constant Reader, Bath.* 1, Pulmonaria officinalis, white form; 2, Equisetum hyemale; 3, Atriplex Halimus.—*W. C., Kylemore.* 1, Pinus; 2, Pinus; 3, Picea polita, Japan; 4, Retinospora plumosa of gardens; 5, Cupressus; 6, Picea ajanensis; 1, 2, and 5, we will compare with our specimens, and let you know next week if possible.—*F. B.* 1, Onychium japonicum; 2, Davallia canariensis; 3, Adiantum Waltoni.—*H. B. P.* An old Camellia of the Colvillei section.—*Orchids, Surrey.* 1, 2, and 3, varieties of Cattleya Trianæ; 3, is very fine in colour; 4, Dendrobium Wardianum; 5, Dendrobium primulinum; 6, Cœlogyne flaccida.—*D. V.* 1, Odontoglossum Pescatorei; 2, Odontoglossum blandum; 3, Odontoglossum nævium; 4, O. tripudians; 5, Odontoglossum nebulosum; 6, Odontoglossum Andersonianum. — *A. J.* 1, Cypripedium insigne; 2, Dendrobium nobile, of good colour; 3, Odontoglossum pulchellum majus. The Crotons, or Codiæums, are imperfect specimens, but 4 is probably C. variegatus; 5, C. interruptus; 6, C. pictus. —*S. W., Bristol.* 1, Asparagus decumbens; 2, Lachenalia Nelsoni; 3, Odontoglossum Lindleyanum; Oncidium Cebolleta; 5, Begonia argyrostigma; 6, Abutilon Savitzii.—*H. T., Newbury.* 1, Euonymus japonicus aureo-marginatus; 2, E. latifolius argenteus; 3, Escallonia macrantha; 4, Euonymus radicans variegatus; 5, E. japonicus; 6, Jasminum nudiflorum.—*Sussex.* 1, Browallia speciosa; 2, Adonis autumnalis.—*Mrs. E. H.* Staphylea colchica.

NOTICE TO QUIT SERVICE: *J. H.* As has often been stated recently in these columns, in the absence of an agreement to the contrary, the length of time is four weeks for each party. To the second question the answer is No.

NURSERY MANAGER: *Enquirer.* If you have a written agreement, it might be of use in a court of law; otherwise you have no redress. Usually a month's notice is required on either side, but cannot be insisted upon.

PRICES OF MUSHROOMS IN THE LONDON MARKETS: Some of our correspondents have drawn our attention to an article by Mr. Lowrie in last week's issue of the *Gard. Chron.*, and inform us that the selling price of Mushrooms is now much nearer 8*d.* than 1*s.* 8*d.* per lb. It is right to say that Mr. Lowrie's quotation referred to the average prices in October and November last, the publication of his article having been unavoidably delayed.

QUALIFICATION OF A COUNTY COUNCIL HORTICULTURAL LECTURER: *Moorpark.* A good knowledge of plain gardening, with a knowledge of how to do a thing, and specially to be able to give the reason why; more especially in fruit and vegetable culture. An intimate acquaintance with the more common garden foes, both fungous and insectivorous, and methods to be adopted for their extirpation. Power of exposition by word and diagram on the blackboard, or magic-lantern; and in simple language "understandable of the people." Ability to act as a judge at shows, and in garden competitions. Ability to show novices how to handle and work in the most efficient manner with any kind of tool or simple machine; and to show the various methods of grafting, inarching, budding, root pruning, and making cuttings. To show how properly to clip, slash and plash hedges, and to plant various kinds of hedge plants, and how to "set in" trees for felling. The treatment of Osiers, &c. How best to grow room and window plants; how to pack fruit and vegetables for market, including sorting and grading. Indeed, it is not easy to tell you what subjects you should not be acquainted with, so multifarous are the matters coming withing the purview of a horticultural lecturer.

RAISING CEDAR OF LEBANON: *E. Brunl.* Obtain new seed, and sow in October in pans filled with sandy loam sifted finely and underlaid with nodules of loam capable of passing through a sieve having a ½-inch mesh, putting in as much as will form a 1 inch layer. Place the pans in a cold pit, and afford water when the soil has become dryish. The plants will appear above ground late in spring, and the pans must then be brought up to the light, so as not to allow the plants to become drawn in the least degree, affording plenty of air, and giving full exposure as the season advances. The plants may be pricked out in beds in the second year, and only as they become furnished with a few true needles.

VIOLET, A SPORT FROM V. PRIMAVERA: *E. Bland.* It is too large, to our thinking, for a "modest Violet;" in that respect resembling the variety Susanne.

VIOLET ROOTS DYING OFF: *J. Lawe.* The foliage is attacked by the fungus called Cercospora Violæ. Pick off badly-affected leaves, and spray with dilute Bordeaux Mixture or with potassium sulphide. Excessive moisture favours the growth and spread of the parasite. *G. M.*

WATER-LILIES: *E. H.* If tubs be not employed, mounds of loamy soil, equal to two or three wheelbarrow loads, may be placed in the pond in which the plants may be planted. If the tops of the mounds are about 2 feet from the water-level, less rather than more, the plants will succeed. It is well to cover the mounds with a 1-inch layer of very coarse gravel, so as to keep the soil compact and in position.

COMMUNICATIONS RECEIVED.—G. I. I.—J. G. V.—E. B. —A. D. H.—W. A. C.—G. J. I.—H. W. W.—F. de Laet, Contich—J. G. B.—A. H.—T. Hill—H. M.—H. R. M.—H. R.—S. C.—Cassell & Co.—A. Worsley.—W. A. C.—H. du Rose.—A. H.—A. D. H.—Dr B.—W. Simpson.—R. D.—S. A.—W. Fyfe.—H. B.—T Coomber.—G. R., Wilts.—A. D. R.—Turnslo.—R. B. L. & Sons.—W. G.—H. W. W.

(*For Markets and Weather, see p. xiv.*)

Æsculus indica: from Kew.

THE
Gardeners' Chronicle

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THE TULIP DISEASE.

THE garden Tulip is not, as a rule, subject to either fungoid or insect pests, but it has long been recognised that there is one disease of a fungoid nature which may wipe out or seriously cripple even an extensive collection.

Readers of the old florists' magazines will remember the discussions which raged in the fifties over the destruction of Headley's and Hepworth's Tulips—whether it was due to frost or to want of drainage; while as late as the Tulip Conference, held at the Botanic Gardens in 1897, there were many Tulip growers, including Herr Krelage, who could speak of the damage wrought within their own experience. As a rule, however, the destruction has been sporadic and temporary; the foliage and the bloom were lost, but the bulb, weakened indeed, survived for another season. The disease appears to make a beginning above-ground where hail or frost, followed by sunshine, gets hold of the foliage; dead brown patches appear, which increase until the whole of the upper growth becomes a dried-up papery mass, and even the bulb itself may be invaded. At times a more dangerous form appears, when the bulb, after planting, is attacked, and perishes without throwing up a shoot at all and it is this latter form of the disease which appears to have been on the increase of late—so much so, that some of the famous Tulip grounds in Holland have become infected and incapable of carrying Tulips. The disease has now been made the subject of a thorough investigation by Dr. J. Ritzema Bos, the well-known Professor of Economic Zoology at Wageningen, who has published an account of his researches in the current issues of the *Centralblatt für Bakteriologie* (ii., 10, 18).

According to Dr. Ritzema Bos, the disease is due to a parasitic fungus, Botrytis parasitica (Cavara), and though known for twenty years or more, it is only within the last decade that it has assumed serious dimensions and begun to affect the bulb industry. Two forms of infection seem to exist, one proceeding from the ground, the other from the air.

In the former case, the young shoot is attacked just as it is pushing from the bulb in late autumn, the tip is first affected, and the disease spreads downwards, consuming the whole shoot, so that no growth appears above-ground. The scales of the bulb are generally attacked, but even at the time the bulb should be blooming the plate and the roots are often still healthy, though they afterwards die. This agrees with what Tulip fanciers in this country have previously observed. Thus we find as early as 1854 Mr. W. Parkinson, of Derby, then a well-known florist, writing, "I have searched the roots over and over again, when I have perceived them turn black or begin to flag, and invariably found grown one or two inches of fine white fibre and root, as healthy as possible to be, and yet a sort of mildew or canker has killed the stem just above the bulb." The offsets which form may become infected also, and often survive, but remain very small, because of the absence of growth above-ground.

In Holland the disease is found to occur in patches in the Tulip fields, and these patches, known as "kwade plakken," do not shift, but gradually increase in size from year to year. It should be remembered that for a long time the land has been cropped on a sort of rotation of first Tulips, then other bulbs, such as Hyacinths, Iris, or Narcissi, then Potatos or Peas, after which Tulips come round again. Though Tulips suffer the most, other bulbs are also attacked, particularly Spanish Iris. That the soil gets infected is to be seen by the recurrence of the disease on the same spot. One very striking case was seen of a new field becoming infected only in places adjoining gaps in the hedge, which separated it from an adjoining diseased field. Clearly the infection had been carried in the soil adhering to the boots of the workmen trampling through the gaps.

When the infection is air borne, the appearances are similar to those already described. In late spring, perhaps after the leaf and bud have developed normally, brown spots appear on the leaf, which grow and become confluent, until the whole is flaccid. If the stem is affected, the bud or bloom falls over; if only the leaf, the bloom becomes correspondingly weakened. In dry weather the diseased parts become thin and white, and almost transparent, through the destruction of tissue. This form of the disease was very common last season (1902) after the severe frost of May 14, when 9° or 10° of frost followed rain, and was succeeded by bright sunshine the next morning. Though the Tulips were blooming in the south of England they died off with great rapidity, and generally an attack of Botrytis was to be seen just where the petals sprang from the stem; in my own case, I was not able to bring a single pod of seed to maturity from this cause. Similar appearances are to be noticed with Iris, Gladiolus, and Hyacinths, and the disease is always more severe in forcing-houses and damp places generally.

On examining the diseased parts, a number of fungi are generally to be seen, mostly common saprophytic forms; but one, characterised by the formation of dark olive-brown conidia, was always present, which turned out to have been previously described under the name of Botrytis parasitica (for description *vide* the current *Journal of the Royal Horticultural Society*, 27, 389). Dr. Ritzema Bos has demonstrated that this species causes the disease by sowing some of the conidia on a Tulip-leaf, and keeping it in a damp place. After three days, yellow spots appeared on the leaf, they soon became visible on both sides, enlarged, and eventually destroyed the leaf with all the characteristic symptoms described before. The fungus also assumes a resting stage in the shape of dark brown or black "sclerotia," bodies like flattened shot varying in size from one-twentieth to one-eighth of an inch, which are found abundantly between the scales of the dead bulbs. Where the disease has been prevalent, the soil was found to be full of these sclerotia, especially where the old dead bulbs had been left in the ground. In these sclerotia lies the real source of the permanent infection of the land with the disease, for after lying dormant in the soil they will start again into activity, most probably in autumn when the ground is warm and moist, and the young hyphæ ranging the earth for food find their way into the growing tip of the Tulip-shoot, and begin the work of destruction.

The question that is of the most practical importance is whether the disease is likely to be carried on in the bulbs; whether, in fact, there is any danger of introducing the disease into our gardens by the importation of bulbs from infected districts, as some parts of Holland undoubtedly are. In the case of Tulips, it is highly improbable that the disease will be thus transmitted by the bulbs, for the Tulip is strictly an annual bulb, formed entirely afresh each year. Moreover, the offsets of diseased bulbs which might be infected, even if they survive, are extremely unlikely to grow to marketable size, because of the destruction of the leaf and all the upper growth.

Hence, a full-grown Tulip-bulb is pretty sure to be free from infection. The case is, however, different with Hyacinths, the bulb of which requires more than one year to grow to marketable size, and which may become more or less infected in their outer scales, yet are large enough to be saleable, and even able to bloom.

Thus, Hyacinth-bulbs from an infected district may become a source of danger, for after blooming, perhaps weakly, they leave behind sclerotia of the Botrytis in the ground, ready to seize upon Tulips or other bulbs planted in the same place in the

following year. It is important, therefore, if an importation of Hyacinths are found to bloom in a weakly fashion, and show the characteristic signs of the disease in the presence of olive-brown patches on the stem, that the ground should be rested for some time from Tulips and other kindred bulbs, and particularly that the diseased bulbs should all be dug up and burnt. But in view of the widespread dissemination of the conidia in the air, and it must be remembered that the disease is always thus springing up, as it were, spontaneously in England when conditions are favourable to its development, it is not likely that soil infection will play any large part in ordinary gardens in this country. The grower of bulbs for market will however be wise, if he finds the disease, to grow some other crop than bulbs on that piece of land for a year or two, just as the fancier with a large collection ought to change his soil after an attack. Furthermore, as a preventive, Tulip-growers ought to be sure that their soil is properly provided with lime; it has been repeatedly noticed that the disease makes little headway on soils rich in lime, but is always at its worst on sour soils, and on those light alluvial lands which have been deprived of almost all their lime by washing. In Holland, liming and resting the land from bulbs for a time has proved the best means of curing the infected spots, and in a small way the use of lime or mortar-rubbish, or best of all basic slag, which also invigorates the Tulip by the phosphoric acid it contains in addition to free lime, have proved effective in maintaining healthy Tulip-beds in this country. *A. D. H.*

NEW OR NOTEWORTHY PLANTS.

LYCASTE EISGRUBENSIS ×, *Kränzlin.*

In size and foliage this new hybrid (L. Skinneri, Lindl., ♂ × L. lasioglossa, Rchb. f.) agrees in every respect with the parent plants. The flower-stalks are rather long, clothed with two or three distant sheaths; the bract is nearly identical with the sheath, and shorter than the ovary. The dorsal sepal is narrow, oblong-lanceolate, acute; the lateral ones oblong, acute, and produced into a short blunt point afterwards at the inferior margin. The colour is a dirty reddish-purple inside, and green outside, except at the margin where the red is slightly suffused with green. The lateral sepals have, near the base on the innerside, the peculiar cobweb hairs of Lycaste lasioglossa, and in size and colour they are directly intermediate between both parents. The petals are smaller than the sepals, but not so reduced in size as they are in L. lasioglossa; they are elliptical, oblong, blunt, whitish, and suffused with pale rose, a little darker to the base. The lip is in shape, circumference, and hairiness, nearly the same as in Lycaste lasioglossa, but the colour is more in the way of a rather dirty variety of Lycaste Skinneri. The column is whitish at the top, and dark purple coloured at the base. After all, the plant is as intermediate between the parent plants as a hybrid can be. The plant is surely a natural hybrid, and was imported by Messrs. Sander & Sons, St. Albans, among a lot of true Lycaste Skinneri. I received fresh material from Prof. Zimmermann, Eisgrub, Moravia, superintendent of Prince Liechtenstein's rich Orchid collection. Prof. Zimmermann informed me that he had received two specimens of this plant direct from Messrs. Sander & Sons. *F. Kränzlin, Berlin.*

NURSERY NOTES.

JAMES VEITCH & SONS AT FELTHAM.

Those who have seen the alterations at the Royal Exotic Nurseries in the King's Road, Chelsea, that have resulted in the loss of part of the land there, and of several of the well-known plant-houses, will undoubtedly be interested by a visit to the new nursery at Feltham, in Middlesex. The present writer having been to Feltham but ten days ago, speaks thus confidently, knowing that his experience there must, in some measure at least, be that of other gardeners who may subsequently avail themselves of the same privilege. The visitor will not be at Feltham long before he is satisfied that compensation on a very liberal scale indeed, has been provided here for the losses at Chelsea; whilst the means that

FIG. 58.—HYBRID BEGONIA AT FELTHAM.
Showing growths from axils of leaves, and formation of tuber at base of stem.

exist for subsequent development are of the most ample character. The firm was well advised when it purchased, some four or more years ago, the freehold of the site of 50 acres the nurseries now occupy. Situated about ten minutes' walk from the railway-station, the surroundings are perfectly rural, and although the London builder is a most daring and pushful variety of the species, under ordinary circumstances it will be many years before the locality can become so populated as to cause atmospheric conditions unsuited to perfect vegetative life and growth.

GLASS-HOUSES RESTORE BALANCE.

The work of building plant-houses, though relaxed, is not completed; several others will be added to those at present in use before a halt is made. The work, so far as it has gone, has been to balance the loss of glass at Chelsea, and of land and glass at the Southfields nursery, a branch which will very soon be only of historical importance. And incidentally, provision has been made at Feltham for just those plants that had shown a lack of appreciation for the conditions at Chelsea. Palms and Ferns, and many stove foliage plants, are not quite so fond of the country as other species, and they accordingly, with their clever grower, Mr. Tivey, remain at Chelsea; but the beautiful and valuable winter-flowering Begonias, that are excellent additions to the list of winter-flowering plants, the tuberous-rooted Begonias, the Hippeastrums, the greenhouse Rhododendrons, the Streptocarpuses, Gloxinias, Cinerarias, and many other species that for years have been cultivated and developed under the immediate care of Mr. John Heal, V.M.H., and that certainly thrive best in a clear atmosphere, are now at Feltham; together with hosts of soft-wooded plants, as Chrysanthemums, Fuchsias, Pelargoniums, Carnations, Cannas, Dahlias, Bouvardias, &c., that are Mr. Weeks' especial care, and the pot Vines under the management of Mr. Williams. All these, and many other species of plants will now be cultivated at Feltham.

The houses that have been built for the purpose are of the best description. They are generally about 100 feet long and 12 feet wide, have span roofs, and are built with a view to affording a maximum amount of light and a minimum of draught. The exceptions include the ideal Carnation-house, which is 100 feet long and 18½ feet wide, in two divisions; the Rhododendron-house, which is actually the one from Chelsea, and has been removed here; and the four vineries and orchard-house, which are 120 feet long and 23 feet 6 inches wide, and are each divided into two divisions.

In addition to the houses, which number nearly a score, there are plenty of useful frames suitable for the cultivation of dwarf-growing plants, the raising of seedlings, &c. By a glance at fig. 61, p. 149, the reader may obtain a good idea of the range of plant-houses and frames, as viewed from the top of one of the three windmills that have been provided for pumping water, &c. It was after two unsuccessful attempts from other "points of view" that the photographer was compelled to drag his apparatus to so hazardous a position.

It must be pointed out that the houses and frames shown in the photograph do not include the five excellent and spacious vineries and orchard-house, which form a block unto themselves some little distance away, and are faced by a long row of convenient garden buildings. No further reference to the vineries need be made at this time, except that already some of the young "eyes" are being rooted; they will soon be making their early growth in turves, and finally fill the grand central beds in these houses, that are now filled with sawdust, into which the pots will be plunged. One of the houses is used in some measure for raising a stock of Fig-trees, another division for the cultivation of Oranges in pots, and the fifth house is entirely devoted to the cultivation of fruit-trees in pots for furnishing orchard-houses. There are also two frames which are supplemental to the vineries, and each is 110 feet long and 6 feet wide.

The Lapagerias now grow at Feltham just as they did at Chelsea, for like the snails they have taken their house with them, and the growths are pegged over the sandy-looking surface of soil, for layering, just as we have seen them so often. Reverting for a moment to the Carnation-house, which is provided with a central and side stages, we remarked in this structure a capital collection of winter-flowering varieties, and some very strongly-grown layers of the variety Souvenir de la Malmaison. The plants of Coleus thyrsoideus we have seen at the Drill Hall in bloom are now in the Chrysanthemum-house, and the rest of their flowers will be encouraged to develop seeds.

A CULTURAL NOTE.

Having reason to believe that the average gardener finds some difficulty in the cultivation of Messrs. Veitch's new hybrid Begonias that flower during winter, it may be interesting to relate the

conditions to which the plants are at present subjected, and also the exact state of the plants themselves. For this purpose a photograph (see fig. 58) was taken of a typical specimen in a rather small 6-inch pot. It must be borne in mind that in this section the cultivator has got not merely a tuberous-rooted plant, or a fibrous-rooted one, but both. These hybrids from B. socotrana and the tuberous-rooted section have the characteristics of both species; and whilst they should not be subjected to the same degree of drying-off as the tuberous-rooted varieties, they distinctly resent the presence of much moisture about the roots after the flowering stage.

At the present time Messrs. Veitch's plants are in a span-roofed house, which is kept at about the temperature of a warm greenhouse, and abundance of air is afforded when the conditions out-of-doors will allow. The roots are kept moderately dry, being afforded water once a week or so, according to the weather. The photograph will give an exact representation of a plant ten days ago. It will be noticed that the leaves are still upon the plant, and are healthy (one has been purposely removed to afford a better view); also that from the axils of the leaves there are pushing young growths, and that at the base of the stem, where the soil has been rubbed away, there is in course of development a small tuber. The culture at the present time is directed to getting the tuber to swell properly and to mature fully, for which purpose it is necessary to keep the leaves healthy and green as long as practicable. Presently the young growths when large enough will be removed from the axils of the leaves, and used as cuttings for the increase of stock, and at the beginning of the month of June the plants will be cut down to about 2 inches from the base. Let the treatment afforded the plants at the present time be one that will slowly (to use a garden term) ripen the plants.

The house devoted to the Streptocarpuses is just now a picture of healthy growing plants that promise to make a magnificent display at the end of May. They represent the strains known as Veitch's Hybrids and S. achimeniflora; this latter strain originated by the crossing of S. polyanthus and Veitch's Hybrids together. Seeds are sown in January, and the young seedlings are planted out in the houses, and some of the most precocious of them commence to flower in September; but these flowers are removed, and in February the plants are put into 4-inch and 5-inch pots. Streptocarpuses may be had in bloom during ten months out of twelve. Some gardeners complain that the seeds do not germinate freely, but at Feltham the pots in which seeds had been sown were as fully furnished as if they had been used for testing lawn grass-seeds. It is evident they are capable of germinating when the conditions are right. Messrs. Veitch's experienced grower, Mr. Heal, sows the seeds in pots in January, in a temperature of 60° to 65°, and the seeds being small, they are not covered at all. It is again a question, in the consideration of which we must take into notice the water-can. The seeds must not be over watered. If the soil becomes sour the seeds will perish. Nor must the soil be allowed to get quite dry; it is the happy medium alone that will induce success.

One large house contains Hippeastrums, something like 6,000 plants, if we remember rightly. They are plunged, and are just commencing growth. The seeds are sown soon after ripening, about July, and last year's seedlings have now three or four slender leaves to each.

Primula × Kewensis (fig. 59), the hybrid from P. floribunda and P. verticillata, is one of the best of new winter flowering plants. Messrs. Veitch have something like 500 or 600 plants. The inflorescences rise boldly from the base 12 or 15 inches high, and require no staking. A photograph (fig. 60, p. 149) was taken of the plants, and this will suffice to show that they produce a large quantity of flowers. The colour is rich yellow, and each individual flower is nearly an inch across.

The new rock plant, Corydalis thalictrifolia (figured in *Gard. Chron.*, Oct. 18, 1902, p. 289, and Supplement), and other new Chinese plants, occupy the greater part of a frame 100 ft. long, by 6 ft. wide. Of the bright flowering Kalanchoe flammea (see fig. 26 in *Gard. Chron.*, July 15, 1899) there is quite a large batch of plants, some about ¾ foot high, but the species K. Kirki, which is scarcely so good a garden plant, is 2½ feet high, and is already coming into flower; also a new hybrid between these two species that has never yet bloomed.

The span-pits, which together have a length of about 250 feet, and are 9 feet 6 inches wide, contain Boronias, Camellias, and general greenhouse plants, and frames extending for 280 feet are used for all kinds of bedding plants, border Carnations, and similar species. There is also a propagating-house for the same class of plants, 100 feet long by 11 feet wide, in two divisions.

Fig. 59.—Primula × Kewensis = P. floribunda × P. verticillata: flowers yellow.

Out-of-Doors.

It will be obvious to the reader that the glass-houses and nursery buildings having been erected on a piece of land 50 acres in extent, there

remains quite five-sixths of the land for the cultivation of out-of-door crops. Of this about 6 acres are used for trials of flower and vegetable seeds; and in connection with Mr. Dawkin's seed department there is also a house 60 feet long and 12 feet 6 inches wide, in three divisions, for the trial of choicer seeds.

Beyond this there are acres of fruit-trees and of young forest-trees, and a walk through the principal grass-covered roads with Mr. Middlebrook, the manager, showed that the very most is being made of the excellent opportunities the ground affords. The operations that were being carried out at the moment included the transplanting of promising Apple-trees, two years old, which are now given spaces of 2½ by 3 ft., where they will have an opportunity to make well balanced trees; 3,000 will be so transplanted every year. Stone-fruit trees make the best of roots upon this soil, and many of these being lifted at the time, impressed the writer by the numerous and fibrous roots they possessed. Extra care is taken with the standard Peach-trees. The stocks are the ordinary Mussel stock, but they are budded just above the surface with a selected and superior "Mussel" for forming a straight, smooth stem, and are then budded with the Peach at the height required. This also prevents much swelling taking place at the point of union. Standard Cherries, 7 feet high, had made excellent stems, and there is an immense number of young Pear-trees, about 8,000 being budded each year; 6,000 Raspberries are cultivated every year, and altogether 100,000 fruit-tree stocks are handled every season. But refraining from remarking in detail upon this department at the present time, this note may close with a reference to the stock of healthy young Yew-trees, which is unusually large.

ACÆNAS.

THE Acænas, or New Zealand Burs, as they are frequently called, are little plants whose usefulness has not as yet been properly recognised in gardens. There are a few growers of alpines who cultivate a small number of species, but, as a rule, only some two or three of these valuable and pretty little plants are to be met with even in large collections of such flowers. It is unfortunate that this is the case, as there are many plants far more largely cultivated which might be dispensed with to make room for these New Zealand Burs. It may be said, by the way, that this "popular" name is unfortunate, as several of the species are not from New Zealand alone, but from other parts of Australasia; while a considerable number of species hail from the south and south-west of the American continent. However, the name of New Zealand Bur will die hard, and is perhaps quite good enough for those who persist in confining themselves to "popular" names, even when such a simple scientific one of Acæna is available. This is derived from akaina, a thorn, from the presence of the spines on the calyx or fruit.

Generally speaking, almost all of the introduced species appear to be hardy in most gardens in Great Britain, although one would expect from the native habitats of some that they would be tender. They either show more adaptability than other plants, or are widely spread in their native habitats, and our stocks have come from colder latitudes, for such as A. ovina, which is said to grow in New South Wales, appears to be hardy enough in Scotland.

They are among the most accommodating of our garden plants, thriving happily in either sun or shade; and some of them even growing well under the shade of Conifers, a situation in which but few plants of their character will survive. They are thus capital plants for many purposes. In the rock-garden they can hardly be used amiss. In the border they may be grown to form carpets, whence may rise bulbous or other flowers. In the woodland or wild garden they can be planted with advantage to grow almost unchecked so as to cover a large stretch with their pretty, variously coloured leaves. One of the best for this is A. microphylla, which has hardly a rival among the genus for beauty and usefulness.

The Acænas are far from troublesome as regards the soil they require. They will do well almost anywhere, but I have seen them at their best in a moist, peaty soil, where, if allowed to grow until they form a mass several feet in diameter, they are exceedingly attractive. Here, again, A. microphylla shows its supremacy, especially when in bloom, when its crimson spikelets make a remarkable effect in such masses as these. The finest effect made with this Acæna that I have ever seen was in the delightful garden of the Rev. C. Wolley Dod, at Edge Hall, Malpas, some years ago. No one who saw this mass of Acæna microphylla there could withhold an expression of admiration. It was worthy of that past master of hardy plant-culture. It is not difficult to obtain a mass of this kind if a little time is allowed for the plants to develop. This they do rapidly, by reason of their running or creeping habit at the roots. Propagation by means of division is easily performed, but they may also be increased by means of cuttings or from seeds.

There is a considerable number named in modern books of reference which are not at present in commerce, but a fair number are procurable in good nurseries here or on the continent. I shall thus endeavour to confine my notes to the species which are thus obtainable with more or less difficulty. They are so easily cultivated that they will soon become better known if attention is called to them.

One has already referred to A. microphylla, which, although one of the first to be introduced, is still unapproachable in its value and beauty. It is of evergreen habit, has a neat habit, albeit of a somewhat trailing growth, while its prettily tinted bronzy foliage forms a charming setting for the showy crimson spines which decorate the round heads of greenish flowers. Where space in the rock garden is an object, it may be grown in the rocky paths or stairways among the stones and crevices, where it looks both attractive and ornamental. It only grows an inch or two high. It is a native of New Zealand, and is sometimes known as A. novæ-zealandiæ.

Next to it one should place, for more than one reason, that known as A. pulchella, but also met with in gardens as A. argentea, but which I have also seen labelled A. microphylla var. argentea, the last having much to be said in its favour. It has fine bronzy leaves, and is more vigorous in its growth than the preceding one. On the other hand, it blooms much less freely, so that it is not so handsome when in bloom.

One of my favourites is A. Buchanani, which has not been described in several good works of reference. Its leading feature is its lovely pea-green foliage, while its greenish flowers are quite inconspicuous; it is a New Zealand species. From a continental source I received one named A. Berteroana, which resembles A. Buchanani so closely, that I have some doubt that it is either incorrectly named or not very distinct. Careful observation leads one to think, upon the whole, that its foliage is lighter and more silvery than that of A. Buchanani.

A. glabra is another species not generally known, though I have had it in my garden for some years. It is one of the species of upright habit, though not more than 4 or 6 inches high, and has rather bronzy-green foliage and inconspicuous flowers.

A. ovina is better known to students of books of reference, and it is one which I should class along with the preceding on account of its upright growth. It is a little dwarfer than the foregoing, but is no less attractive on account of its fresh, green, wrinkled, rather elliptic leaflets, which are glabrous on the upper surface in my specimens, but in some are pubescent on both sides. A somewhat similar but more elegant Acæna is A. ovalifolia, a Chilian species, while A. ovina is from Australia. The latter has its flowers in spikes, but they are not ornamental. I find these hardy.

A. millefolia has pretty, finely-cut, light green leaves, and is only desirable for its foliage, as it is rather spoiled by the arrangement of the flowers on its spikes; otherwise it is a desirable Acæna.

A good growing species is A. myriophylla, with pretty, deeply-cut leaves, and growing from 6 to almost 12 inches long; it comes from Chili, and has inconspicuous flowers in close heads.

Among those less frequently grown one may place the Patagonian A. adscendens, with rounded heads of dull purple flowers and obovate leaflets, which are silky beneath but smooth above. This is as yet a rather scarce plant; so is A. sericea, which is synonymous with A. cuneata, and has toothed, oblong leaflets, and rounded heads of small flowers. The leaves are silky underneath.

Two stronger-growing species are A. Sanguisorbæ and A. sarmentosa, which are well adapted for planting on the rockwork, so as to trail over the stones. The first has leaves varying from 2 to 6 inches long, and on the whole a rather coarse habit; it has its flowers in rounded heads, and the leaflets are silky underneath. The second of these two Acænas is of more rampant growth, but is suited for similar positions; it is altogether larger, and grows more loosely, and is thus not so desirable for carpeting as some of the others.

Of the two other species known to me, but which I have not grown myself, the better appears to be A. splendens, a Chilian plant, with leaves of a silky white on both sides. I am doubtful of the hardiness of this species, as from the only plant I have met, it looks as if it would suffer from wet; it has its flowers in long spikes, instead of in round heads. The other, A. pinnatifida, is said on good authority to be only half-hardy, and with so much variety of hardy species, it seems almost unnecessary to cultivate it; it is of erect habit, and grows about 6 inches high. *S. Arnott.*

CULTURAL MEMORANDA.

ECHEVERIA RETUSA.

THIS species is useful for the decoration of rooms, lasting in full flower for several weeks; in a cut state the flowers have a fine effect when associated with Lily of the Valley or Roman Hyacinths. In order to raise winter flowering plants, offsets should be taken early in the spring, and grown on in a warmth of 60° till established in 48's or 32's, and then stored in a shady cold frame, drawing off the lights in fine weather. In October remove the plants to a greenhouse, and bring batches into heat as may be required. As a potting soil, loam three-quarters and leaf-mould one-quarter, with some decayed stable-manure and plenty of sharp sand, is suitable. When the plants begin to show flower-buds, liquid-manure may be freely used. *J. Murray, Sopley Park, Christchurch.*

MOSCHOSMA RIPARIUM.

Any gardener desirous of possessing a good decorative plant at the Christmas season, should grow this greenhouse plant. The plant is easily grown under the same conditions as Salvia splendens; cuttings should be struck in the month of April, and the plants grown in the full sunshine, and be stopped two or three times. The most

Fig. 60.—Group of plants of Primula × kewensis in glasshouse at Feltham. (see p. 146.)

suitable pots are 32's, as the better ripened is the wood, the better the plant flowers. The flowers superficially resemble the well-known Spiræa, but are white with a pale mauve tint; their odour is rather unpleasant to some persons. My plants stood for three weeks in hot rooms without dropping their flowers. The plant is effective when planted in baskets along with Cyperus and small grasses. *J. Dryden, gr., Wyck Hill Gardens, Stow-on-the-Wold.*

Ageratums Swanley Blue and Album.

By sowing seed of the above, or other varieties of Ageratum, in a pan or box, in early spring, a good stock of plants may be raised in time for planting-out by the end of the month of May. Sow thinly in light, finely sifted soil, cover lightly, and then place in heat, covering the pans or boxes with glass or paper. Directly the seeds germinate, remove the covering, prick the little plants out into boxes as soon as large enough to handle, at about 2 inches apart; return to heat, and apply water to settle the soil, and shade from sunshine with paper till the young plants have pushed their roots into the soil. In order to secure sturdily grown plants, it is necessary to afford them a position near the glass, and to ventilate in proportion to the growth being made, and according to weather conditions, increasing the quantity of air given as growth increases and bedding-out time draws nigh. When the plants have attained a little strength, pinch out the points to make them branch. *H. W.*

Salvia patens.

This species of Salvia may be raised from seed sown during February or March in mild heat, and when the plants appear place them near to the light so that growth may be sturdy. When about one inch of growth has been made, dibble them singly into small 60's, filled with leaf-mould and sandy loam, and return them to the shelf. In due time afford them similar positions in a cooler and more airy structure, where they may remain till the end of the month of May, and then be planted out. Salvia patens is well adapted for planting thinly in "mixed" beds, or among variegated-leaved pink-flowered Pelargoniums, as P. Manglesii, or the scarlet-flowered P. Bijou, and the yellow-flowered Cereopsis grandiflora. The latter is a pretty free-flowering hardy perennial, and it looks well in company with the Salvia as a dot plant. Salvia patens is a telling plant grown in a pot for the conservatory. Salvia coccinea, a species with small scarlet flowers, is likewise worthy of cultivation for the same purposes. *H. W. W., Lime House, Rayleigh.*

Thunbergia alata.

The annual species of Thunbergia include several which make pretty basket plants for the greenhouse, and bordering the plant stages. Seed should now be sown in heat, employing pots filled with a light compost. When the seedlings are convenient to be handled, prick them off in pans or cutting-boxes, and replace in heat, shading them for a few days during sunshine. Subsequently the plants may be placed to the number of three in 5-inch pots, and five to nine in baskets. *H. W. W.*

Rudbeckia speciosa (=Newmani).

This is a very useful and effective decorative hardy perennial plant, either for growing among other similar plants in the herbaceous border, or using in a cut state for filling large vases for the embellishment of halls, rooms, &c., for which purpose the long spikes surmounted by large orange-yellow flowers, to which the black centre lends additional beauty in the way of contrast. The plant will succeed in any ordinary soil, and is admirably adapted not only for cutting, but also for planting in isolated positions in garden or shrubbery. Established plants when divided into sundry pieces and transplanted separately soon become good specimens, and yield a mass of flowering spikes from 2 to 2½ or even 3 feet high, according to the depth and fertility of the soil during the summer months. Where the natural soil is unduly heavy, it may be rendered more congenial to the root requirements of the plant by the addition of a little leaf-mould, burnt earth, road sweepings, and such-like corrective ingredients for land of this description. *Essex.*

Ipomœa rubro-cœrulea.

This is a grand plant for producing an effective colour in autumn and early winter. An excellent method of treatment is to sow seed every season in 4-inch pots at about midsummer, and put them in a close frame. When the seedlings are all through, admit air, that they may grow sturdy; and when they have become well rooted, pot them into 8-inch pots, using good "holding" soil. Place them outside in a sunny position until about mid-September, then remove them to a moderately warm house, and afford them manure-water occasionally. They would then produce an abundance of flowers till after Christmas. Associated with Poinsettias, they make a good contrast during the dull days. *Thos. Denny, Down House Gardens, Blandford.*

Shrubby Phloxes.

To cultivate Phloxes of this section successfully, the soil should be well enriched and deep, and water and liquid-manure applied in dry weather. Young plants should be reared to take the place of exhausted stools which fail to produce good blooms. Although the Phloxes are

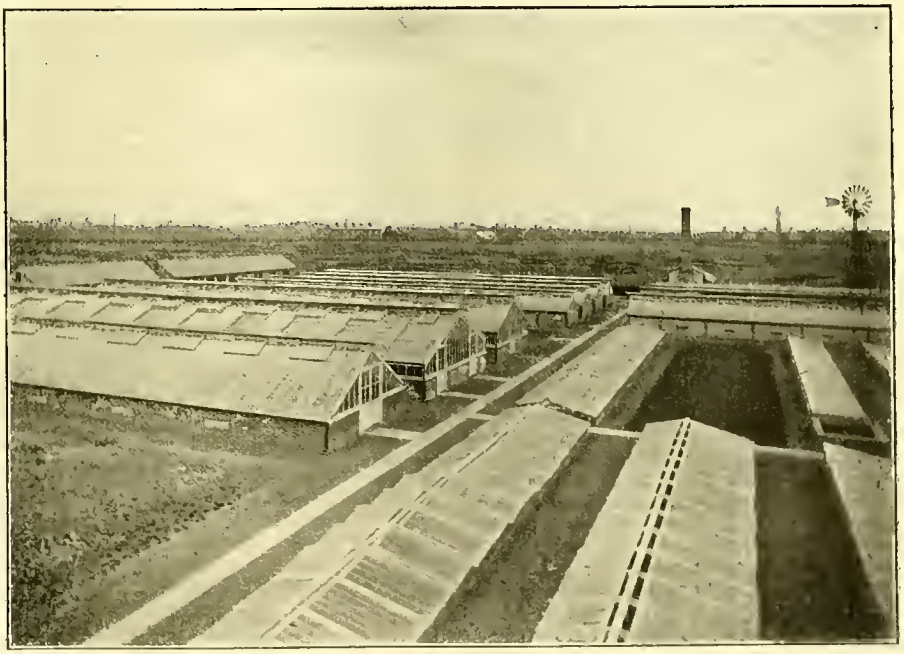

Fig. 61.—View of plant-houses and pits in Messrs. Veitch's nursery at Feltham. (see p. 146.)

readily increased by division, I usually propagate at this season from cuttings when the shoots have grown about 3 inches in length; these being taken off and dibbled either into sandy soil in pots and stood in a little warmth, or put under handlights, and kept close and shaded during sunny weather. Roots are soon formed, and the cuttings can be planted out after due hardening. Seeds of good strains may now be sown, and from these many nice tints and good trusses are obtained, of which the best may be retained and the poorer ones thrown away after trial. *H. M.*

HEUCHERA SANGUINEA.

This is a useful plant, making a pretty display in beds, as edging, and in the herbaceous border. Seed may be sown now in pans, and placed in warmth, and in this way a good stock of plants may be raised. The old plants, when an increase of stock is required, may be taken up, divided, and replanted in nursery beds, where they should remain for a year before planting them permanently; a few may be flowered in pots. *H. Markham, Wrotham Park.*

FLORISTS' FLOWERS.

THE AURICULA IN EARLY SPRING.

THE Auricula, whether cultivated in pots under glass in a cool temperature or in the open border, is on the move. Indeed, it seems to have enjoyed an unusually short season of rest. It experienced a rare growing time through the cool moist summer of last year; it appeared to rollick during the bursts of fine open weather in the autumn. Christmas found the plants well furnished with foliage; the leaves disappeared to a large extent during January until the call of spring came, and the new foliage is being rapidly developed. Despite the vigorous growth of last season, I had but very few trusses of bloom; some of the fine named alpine varieties became flowerless in December, but they kept down and will now, I trust, give me an early bloom, though they occupy, and must do so, a north aspect.

As the plants become active, greater demands are made upon the moisture in the soil, and its application needs careful attention. Not that the plants require a soddened soil; what they want is a comfortable quantity of moisture, enough to keep them moving in a stately manner and without provocation to the rot; clean pots, clean stages; the surface gently stirred at times so that the soil may be kept open, and plenty of fresh air. I take it for granted that the pots were well drained at potting-time, and the compost employed in that process every way suitable under such conditions, then plants ought and will do well.

One of the difficulties attending Auricula culture so near to London as Ealing, is the London fogs. They come westward, swept on in dense clouds before the east winds, and they appear to be loaded with acidulous properties, which fastening upon the points of the outer leaves of the plants, wither them in a short time. My neighbours hard by at Gunnersbury—Messrs. Geo. Reynolds, and James Hudson—have their early blooms of forced Strawberries destroyed in the same way; and the bloom of their forced Peaches and Nectarines affected in the same way. So are those of Carnations, Bouvardias, &c. The sweet Violet appears to shrink from contact with this vile property. I cannot grow it in my Ealing garden. Happily, acid-laden fogs were not so numerous during the autumn and winter as is sometimes the case; at least, symptoms of injury were not so apparent, perhaps something was due to the vigorous growth made in 1902. If any plant may be said to absolutely require a pure untainted atmosphere, it is the Auricula.

The old routine of top dressing the plants in pots, once so religiously performed at this season of the year, is only partially followed now-a-days. I like to see the fibrous roots active near the surface; and to disturb them seems likely to be harmful under such a condition. I prefer to trust to the unexhausted reserve of nutriment in the soil, than to apply anything in the way of a fertiliser. If any do apply stimulants, they are men who know thoroughly what they are doing. I have known amateurs apply sulphate of ammonia with disastrous results. I have occasionally given a little weak soot-water as the plants advance into bloom, but always with great care. I prefer to see smaller pips highly refined, than large ones coarsely proportioned; and I cannot help thinking that at our southern Auricula shows, mere size of truss and pip is a little too much considered by the judges.

There appears to be a bad time in store for the long styled Auriculas; some of our newer alpines show the protruding style among the anthers, and perilously near the top of them. To admit such to competition, and to award prizes to them, is as a kind of challenge thrown down in opposition to the old law in floriculture that the "pin-eye" is a disqualification. To remove the pin is but a form of trickery, as it is intended to mislead the judges. There was, therefore, some necessity for the re-affirmation of the principle that it is a disqualification, and the Midland Auricula-cultivators in meeting at Birmingham last May, made this affirmation with remarkable emphasis. There are now so many new alpines, that defective varieties should find no place on the exhibition table.

The Week's Work.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Protecting the blossoms.—Peach-trees should now be afforded protection against frost, sleet, hail, and snow; and in gardens having walls furnished with portable glass copings, doubled or trebled fish-netting should be hung from the front edge of the coping, and made fast to stout pegs driven into the ground at 6 feet apart. This kind of protection is, as a rule, ample. When no such safeguards exist, Larch-poles pushed under the usual wall coping, and trebled netting may be employed; and in damp situations thin scrim should be placed over the fish-netting when sharp frosts threaten, removing it in the early morning, but not the netting, which may remain, as it admits as much sunlight and air as the trees need, and it will form a protection to the growth later on. In some gardens no precautions are taken against the inclemency of the weather, and good crops of fruit are obtained in favourable seasons, but our climate is so capricious that the prudent gardener usually takes precautions against the loss of a crop of fruit.

Strawberries.—The ground having been trenched in early winter, and subsequently hoed when in a dry state, it should be in a suitable condition for setting out the plants about the middle of the month. In planting strong-growing varieties, allow 2½ feet between the rows, and 2 feet between the plants in the lines. The varieties Latest-of-All, Elton Pine, and British Queen, which are sparse of growth in some soils, should be planted 6 inches closer each way. Let the planting be carried out firmly, and a mulch of strawy manure applied, not necessarily all over the soil, but on each side of the rows. These plants must not carry fruit this year, but a few early runners may be taken for early forcing purposes or for planting in the month of August. The variety, The Laxton, appears to be a strong grower, and I would advise all who intend to plant it to afford it ample space.

Miscellaneous.—Where Gooseberries have not been pruned, from fear of the birds taking the buds, the operation should receive attention forthwith, as I do not think that anything is gained by leaving them any longer unpruned. Should dry weather prevail in the present month, late-planted wall-trees will be benefited by heavy syringings applied early in the afternoon in mild weather.

FRUITS UNDER GLASS.

By T. H. C.

Cucumbers.—Pinch out the points of the plants when they have grown half way up to the trellis, and stop the side shoots and laterals at a joint beyond the fruit. Avoid over-crowding the foliage, and tie in the shoots with this end in view. Cucumbers succeed in a free, rich compost, with frequent top dressings. A top dressing consisting of rich loam, and spent Mushroom-bed dung, in equal parts, may be afforded as soon as the roots appear at the surface of the soil. Maintain the air at all times in a moist state, and keep a sharp outlook for aphides and red spider. A night temperature of 65° to 70° is necessary, and one by day of 85° with sunheat and ventilation. Do not crop aged plants heavily, or neglect to afford frequent applications of liquid-manure, and light top dressings to the roots. These old plants should be removed as soon as the young ones have come into good bearing. Young Cucumber plants should always be planted out before they become pot-bound. Sow seeds of Improved Telegraph, Cardiff Castle, Every Day, and Perfection for succession.

The Early Vinery.—The bunches on the Vines that were started early in the month of December will be ready for a reduction in their number. Those hanging nearest to the hot-water pipes will be a few days in advance of those in other parts of the vinery. I like to retain a good number of these, as they are usually the earliest and best coloured. If bunches are very numerous, remove all except one to each lateral before flowering begins. Fertilise the flowers daily, and when it is seen which bunches have set the best, reduce these to the requisite number for a crop, which may range from eight to twelve to a rod, more or less, according to the vigour of the Vines. In thinning the berries, commence at the point of the bunch and finish with the shoulders, taking great care not to rub the skin of the berries. The temperature at night should range from 65° to 70°, and by day 10° to 15° higher; ventilation being afforded whenever the weather permits, and closing early, so as to retain some of the solar warmth.

Succession Vineries.—Tie down the main laterals, stopping them at the joint beyond a bunch, and minor ones at the first leaf, avoiding any crowding of the foliage; ventilate freely in mild weather, otherwise the growth will be lacking in strength and become subject to insect and fungoid attacks.

Insect Pests.—Upon the first appearance of red-spider or thrips, let the infested leaves be sponged with tepid water, in which a small quantity of soft-soap is dissolved. Follow up the winter dressing for the eradication of mealy-bug by a weekly inspection of the Vines, preferably in bright weather, when many of the insects recently hatched out will be observed crawling about, or hiding about the spurs. A touch from a brush dipped in methylated spirits will instantly kill them. Likely-looking hiding-places may be cleansed with the same kind of insecticide. Muscat Vines approaching the flowering period may be afforded a night temperature of 70° to 75°, the higher figure in mild weather only. Carefully fertilise the flowers daily, and maintain a dryer atmosphere in the daytime, so as to assist in the distribution of the pollen, ventilating the vinery daily if the weather conditions are in any degree favourable.

Strawberries.—Do not apply manure-water to any plant that is carrying fruit approaching the ripening stage; and towards the finish, the flavour of the fruit will be improved if the soil be kept in a moderately dry condition, but not so dry as to cause shrivelling of the leaves. Thin the fruit on successions, and as the season advances, allow them to carry a slightly heavier crop than the earlier plants. Afford manure at every application of water; syringe the foliage, and maintain a moist state of the air till the fruit begins to colour, when a dry atmospheric *régime* should be maintained.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury.

The East Indian-house.—The plants of Angræcum sesquipedale, Vanda Bensonæ, V. Sanderiana, the Saccolabiums, and Aërides, should now be examined, and those that stand in need of repotting or fresh surface material should receive attention forthwith, picking out all decaying material from among the roots, without damaging the latter, or disturbing any that are clinging to the pots; this done, make the drainage perfect, filling in amongst the roots with the following compost:—good, rough, partly-decayed Oak-leaves, two-thirds; rough lumps of peat, one-third; a small quantity of chopped sphagnum, and a considerable quantity of silver-sand, clean crocks, and bits of charcoal. Before using these substances, see that they are in a moist state, and warmed. Fill the pots almost to their rim, and afford a surfacing of sphagnum. If a plant has become ungainly through loss of leaves, remove the lower portion of the stem, and place the plant in a much smaller pot, and for some time afterwards afford water with discretion, damping the sides of the pot and overhead being usually sufficient.

Vanda cærulea.—I find that this plant succeeds in the cooler part of the Cattleya-house, with ventilation afforded whenever the weather is favourable. It does well in pots placed on the stage, and in a similar compost to that advised for Angræcums. During the summer months it should be afforded a liberal supply of water at the root, and overhead sprayings on bright days; and in the winter, when the roots are sealed over, scarcely any water is needed. But now the plant is exhibiting signs of growth, the amount of water should be increased by degrees, and repotting and top-dressing attended to.

Oncidium macranthum, O. superbiens, and O. undulatum. — The very large flower-spikes, if allowed to remain on the plant for any great length of time, exhaust the plant; and it is advisable in the case of a plant that has flowered abundantly, or which has carried its flowers for too long a period of time, to remove the flower-spikes as soon as they show the next year. The plant being in active growth at this date, much moisture is needed at the root. Plants destitute of flower-spikes which may require repotting may receive attention, affording ample rooting space, well drained pots, and a compost of leaf-soil two-thirds, peat one-third, with the usual coating of sphagnum. Place in the warmer part of the cool house.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Primulas.—The old double white flowered Primula is regarded as the best for flowering at mid-winter and later in the year. As it is advisable to make an early start in order that sturdy plants may be obtained in November, the plants should now have the bottom leaves removed with a pair of scissors, and a top-dressing of equal parts of sifted loam and leaf-soil, with plenty of silver sand added, applied close round the root-stock of the plants in order that the lateral shoots may take root in it, which they should do in about eight weeks. When roots are observed the shoots may be snipped off. Keep the mother plants near to the glass in a pit having a temperature of 55°, and the compost uniformly moist, with light shading thrown over them on very bright days up to 3 p.m. Some gardeners drop each plant into a pot of larger size before mounding them up, which is an advantage, as it keeps the soil in place, and it does not dry up so quickly. For an early batch, seed may be sown of the single varieties.

Cinerarias.—Plants of C. cruenta or C. stellata for late flowering should be placed in a cool north house or pit, and full ventilation afforded in favourable weather, applying fire-heat only on frosty nights. The sun should not be allowed to shine directly on the plants after this date, as I find the foliage is not so firm as that of the larger-flowered varieties.

Euphorbia Jacquiniæflora.—Remove the flower-heads of this plant, and place the latter in a house having a temperature at night of 60°; keep moderately dry at the root and overhead for the present. Cuttings may be taken in April.

Epacris and Ericas are among the most useful of spring-flowering plants, lasting well whether on the plant or in a cut state, and their delicate colours always attract attention. As the plants pass out of flower, cut the growths hard back, and thin out the spray, and treat similarly to Azaleas, except that they thrive best in peat and silver-sand only. The softer-wooded varieties of Erica, such as Wilmoreana, hyemalis, gracilis, and a few others, may be treated in like manner. Keep the general stock of Ericas as cool as possible, and apply water only when it is really necessary, and make no use of fire-heat unless it be to keep out frost, giving full ventilation on mild days.

Calceolarias.—These plants should be potted before they become pot-bound. Our stock is in 5 and 5½ inch, and these plants will be shifted into 7 and 8 inch ones respectively, in which they will bloom. Use plenty of drainage, and a compost consisting of good turfy loam half, decayed sheep or cow-manure quarter, and leaf-soil, coarse silver or clean river-sand quarter, potting moderately firmly, being careful not to injure the leaves. Having potted the plants, stand them on a shelf near the glass for a few weeks, and fumigate them on the first appearance of aphis. The careful affording of water is necessary at every stage; fire-heat should be but sparingly employed, and plenty of room afforded the plants. After the middle of the month they should be stood on a coal-ash bottom in cold pits, preference being given to those having a northern aspect.

Shadings.—As the month of March comes in, a slight protection from the full power of the sun becomes a necessity with many stove and greenhouse plants, flowering and foliage alike, say, from 10 A.M. to 2.30 P.M., though much depends upon the aspect of the house. Crotons and Dracænas should have the brighter end.

THE KITCHEN GARDEN.

By John Fleming, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Peas.—A sowing may now be made of some of the main crop varieties, remembering that Peas having wrinkled seeds are more influenced by an unfavourable state of the weather and the soil than the round seeded, and should therefore be sown more thickly than the latter. Here, on light land, the seed drills are drawn 6 inches deep, and the seed is covered with about half of the soil which comes out of the drills, the other half being drawn up to the plants when these are 4 inches high. Better crops of main crop Peas are obtained from rows standing at 10 to 15 feet apart, than at 4 to 6 feet apart, the ground between being cropped with early Potatos, Cauliflower, Turnips, or Spinach. It is always wise to roll the seed in red-lead before sowing it. Peas started in pots or boxes should be gradually hardened off, taking care that no check be given them. Do not be in a hurry to plant these out in the open, or they may fail to give satisfaction. When planted, the plants should be moulded up to the leaves, and stakes put to them forthwith, introducing a few evergreen branches among these to afford shelter. Peas sown in the open last month are coming through the ground, and should have nets placed over them. Apply occasional dustings of fresh soot and lime.

Beans.—Make another sowing of Green Windsor. Broad Beans sown under glass need the same kind of treatment as that advised for Peas.

Turnips.—Small and frequent sowings should be made on a south border in drills at 1 foot apart and an inch deep, applying to the land a dressing of soot and wood-ashes when the sowing is finished. Early Milan and Snowball are trustworthy varieties.

Spinach should be sown on a warm border in drills drawn at 15 inches apart. Winter Spinach should have the soil frequently stirred with the Dutch-hoe, applying a slight dusting of soot and wood-ashes in equal proportions about once a fortnight.

Potatos.—Early varieties may be planted in moderate quantity on warm borders, the tubers being planted deeply, and all shoots rubbed off, excepting two or three of the stronger ones. Potatos in pots or in heated pits that were planted in the autumn will soon be fit for the table, and less water should be afforded them, so as to mature the tubers early. Afford abundance of air in fine weather. Successional batches should be examined on warm sunny days, and if the soil be dry, a thorough application of tepid water should be applied. Top dress others with warmed soil as soon as the haulm is well through the soil. Look over the Potato-store, removing all diseased tubers, and rubbing off the sprouts from the remainder. The main crop sets should be spread out thinly on a floor, made secure from frost, and be kept cool.

Celery.—Make a sowing for the main crop in well-drained pans or boxes filled with a light porous compost, pressing the soil firmly, and sowing the seed evenly and thinly, just covering it with fine soil. Place the pans on a mild bottom-heat, covering them with sheets of glass or pieces of brown paper till germination has taken place, after which uncover and keep near the glass in a cooler place.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Gladiolus.—Where early flowering is desired, some of the corms should be planted forthwith. The Gladiolus of the Childsii and Lemoinei types being of good constitution, and consisting of beautiful varieties, should be largely planted, choosing solid middle-sized corms, these giving better results than very large ones; and this holds good of other types of Gladiolus. If the ground has not been dug in readiness for planting when the soil is in a friable condition, let it be dressed with farmyard or other rich manure in a decayed state, and dug deep enough to prevent the roots of the corms from coming immediately into contact with it. The Gladiolus suffers by being planted in heavy pasty soils, and where such exist they may be improved and rendered acceptable by the addition of sand, charred garden refuse, road grit, and sandy loam. A handful of sand should be placed under each corm on planting it. Draw drills for planting about 15 inches apart, and 3 to 4 inches deep, and set the bulbs at about 9 inches apart, and after covering them rake the plot over. If not planted in beds, groups of about ten bulbs may be planted among autumn-flowering herbaceous perennial plants, in which position the flower-spikes show to advantage.

Pæonies.—These, as I have pointed out in previous notes, resent disturbance, but they are of such a tufted nature that something must be done to relieve the crowding of the growths, and if half of each big clump be split off, and a big hole dug and partly filled with rich manure and soil, an improvement in growth and in the size of the flowers will take place. The best crowns (outside) of the split-off portions may be replanted in rich soil, and though the result for the first year may not be very good, the plants will grow in strength as time goes on. For naturalising in grass I have found the double forms of P. officinalis among the best for the purpose, and I would advise their abundant planting in the wild garden.

Anemone japonica. — This is another plant which should not be disturbed, and which often may be kept in good condition by splitting the clumps in half, taking away the older or central portion each year, and well manuring that which is left.

Echinopsis ruthenicus.—Dry seasons often affect old clumps of this plant badly, and plants should be raised from root-cuttings put into boxes of soil at this season, planting them out during the summer.

Solomon's Seal.—A position should be found for this plant on the banks of lakes and streams; and replanting should now be carried out. Cover the crowns 3 inches deep so that they have that much of soil to penetrate before reaching the surface.

Sweet Peas. — Though I have recommended sowing the seeds in flower-pots, this is not always feasible, nor is there any fear if sowings be made outside at the present time. An effective mode of growing Sweet Peas is to sow in rings of 4 feet in diameter, one variety in each ring. It is advisable to form a hollow in the centre of each ring in order to facilitate the application of water.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, MAR. 7 { Société Française d'Horticulture de Londres Meeting. Surveyors' Institution (Junior) Meeting.

TUESDAY, MAR. 10 { Royal Horticultural Society's Committees Meeting, lecture on "Natural Selection *v.* Adaptation."

SATURDAY, MAR. 14 { Royal Botanic Society's Meeting.

SALES FOR THE WEEK.

MONDAY and FRIDAY NEXT—
Roses, Fruit Trees, Perennials, Plants, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.

WEDNESDAY, MARCH 11—
Azaleas, Palms, Liliums, Border Plants, Roses, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Established Orchids in Flower, specimen and smaller Palms, a fine importation of Japanese Iris, in named varieties, &c., at Stevens' Rooms, at 12.30.

THURSDAY, MARCH 12—
Absolute Clearance Sale of Nursery Stock at the Horsell Birch Nurseries, Horsell, near Woking, by order of Mr. Knowles, by Protheroe & Morris, at 12.

FRIDAY, MARCH 13—
Orchids in great variety, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick—42°.

ACTUAL TEMPERATURES:—
LONDON.—*March* 4 (6 P.M.): Max. 56°; Min. 38° Wind, W.; weather fine; rainfall none *March* 5 (Noon): rainy.
PROVINCES.—*March* 4 (6 P.M.): Max. 52°, Penzance; Min. 4°, Shetland.

Secret Commissions.

THE Bill proposed to be laid before Parliament for the purpose of putting a stop to corrupt practices in business, is calculated to stir up dirty water. Whether it will have other effects remains to be seen. The letter on the subject in the *Times*, which we subjoin, and purporting to come from a nurseryman, will infallibly tend in the same direction, and will lead some to doubt the wisdom of the proceeding. So long as human nature is what it is, say they, so long will these irregular proceedings be indulged in. No doubt that is true, but our inability to attain perfection should not and need not prevent us from making every reasonable attempt to lessen the evil, even if we cannot altogether abolish it. If we do not, the evil is bound to grow worse as competition becomes more severe.

But if we cannot abolish the custom of the trade, or, if from various reasons it is considered desirable not to do so, then let the custom be carried out openly and regularly, according to some recognised scale, and let not one firm endeavour to gain the advantage over another by breaking through the recognised custom.

On this account we welcome the appearance of the letter we have alluded to, and see in it the promise of one means for at least regulating the practice and diminishing its results. The evil being admitted, as we know it is, how is it that the leading firms do not come to some common understanding about it? We are not so Utopian as to suppose that there shall be no more "cakes and ale," even if the mighty ones of the commercial world should make an enactment to that effect. But common interests might, at any rate, lead to an understanding that the amount of the cake and the measure of the liquid should not exceed reasonable limits; and especially that secrecy and underhand proceedings should on no account be tolerated.

Of course, every one recognises the great difficulties there are in the way of improvement. One of the greatest is the impossibility of defining what is or what is not, legitimate on the side of the donor, and honourable on the side of the recipient. No arbitrary division can be laid down, and the matter must be left to the individual conscience and the influence of particular circumstances. To say that in all and every case, without reference to circumstances, it is wrong to offer a gift, and a dereliction from honesty to receive it, is to say what is unreasonable. But the consciences of individuals and their estimates of what is honourable and consistent with reason, may be quickened by association with others with similar interests, and that is why we suggest a meeting of the principal nurserymen and seedsmen to consider the question in all its bearings and to agree on some common action. They could not, of course, enforce their will upon others who chose to remain outside the convention, but these would soon find it to their interests to conform to the practice of the larger houses, as the public would soon find out what firms were likely to treat them most equitably.

Another and a very formidable difficulty is afforded by foreign competition. If "commissions" were to be abolished, or at least regulated here by common consent, what is to prevent our foreign neighbours from availing themselves of the opportunity of wresting the business from our own people by the offer of more liberal commissions? This is no fanciful danger—it is a real one, as we have seen from circulars brought under our notice bearing the names of well-known Dutch houses.

The case of the recipients must also not be left out of consideration. Even in bad cases, their offence against honesty is not so great, and more valid excuses may be made for them than in the case of the tempters.

The wages paid to capable men are in many cases quite inadequate in proportion to the responsibility, ability, and forethought that are required of a gardener. The difference between the payment meted out to the skilled gardener and the position he occupies, and the treatment which other officials on the same estate or household receive, is often apparent enough to anyone except the proprietor. As to the incompetent man, he is, of course, dear at any price, and should select some other avocation.

That the inadequately-paid skilled craftsman should be willing to accept a secret commission, or "agency," is no doubt lamentable, but is comparatively a venial matter, and one which a better education and a higher rate of remuneration would do much to restrain.

The following is the letter in the *Times* to which we have alluded:—

SECRET COMMISSIONS.

TO THE EDITOR OF THE "TIMES."

SIR,—I hope you will consider the enclosed letter of sufficient interest to justify me in asking you to print it. It comes from a leading firm of horticulturists which is in the habit of allowing 5 per cent. discount on all orders to customers, at the same time giving a commission of 5 per cent. to their gardeners. I have lately got a new man who will not accept commissions. I therefore wrote to the firm saying that I proposed in future to deduct 10 per cent. from their account. This, their answer, speaks for itself, and may, I think, revive the interest of the public in the Bill of the late Lord Russell of Killowen concerning secret commissions. Yours,

ERNEST DE LA RUE.

26, Belgrave Square, S.W., Feb. 23.

Feb. 16, 1903.

Sir,—We have your letter, and are very sorry indeed you did not mention the matter to which it refers to our Mr. —— when you were here. He would have been, and now is, quite prepared to speak quite frankly on this deplorable custom, to which we are forced to submit, and on the rights of which we think every right-minded person can have but one opinion.

We must, however, say there are many gardeners to whom we do not give presents, sometimes in obedience to the men themselves, more often in obedience to the wish of the employer.

Prices are fixed by competition and by the quality of the stock supplied, and these "presents" in no way affect such. We have always, and always do, decline orders when we are asked for a "present," which our published and fixed prices do not allow us to pay.

The tone of your letter leads us to think you may not realise how ingrained this custom is, or to what lengths it is notorious some firms go to seduce the loyalty of private servants, and if you would care to talk over the point, our Mr. —— will be only too glad. In the meantime, we beg you will believe we never have paid an improper commission, nor improperly attempted to obtain an order; and that there are gardeners who do not accept any present, and employers who do not permit presents in money to be made—though, on the other hand, there are employers who have no objection.

We cannot allow you more than 5 per cent. for cash payments, and will not send your gardener presents; and beg before you take away your custom, which Mr. —— will be very sorry indeed to lose, you will look at this question in all its bearings.

We are, Sir, your obedient servants,

. . . . . .

ROYAL HORTICULTURAL SOCIETY. — The next meeting of the Floral and Fruit Committees of the Royal Horticultral Society will take place on Tuesday, March 10, in the Drill Hall, Buckingham Gate, S.W., 1 to 4 P.M. A lecture on "Natural Selection *v.* Adaption," will be given by the Rev. Prof. G. HENSLOW, M.A., V.M.H., at 3 o'clock.

—— At a General Meeting of the Society held on Tuesday, February 24, 103 new Fellows were elected, amongst them being Baron Anthony de Worms, Sir John Dickson-Poynder, Bart., M.P., Lady Allen, Lady Cunliffe, Lady Constance Ryder, Lady Edwards, Lady Smyth, the Hon. Mrs. Chas. Trotter, and the Hon. Mrs.

Parry-Evans, making a total of 323 elected since the beginning of the present year.

—— Hyacinth and Tulip Prizes. At the Society's fortnightly exhibition on March 24, Special Prizes will be offered by the Royal Bulb-growing Society of Haarlem, for Hyacinths and Tulips as follows:—

120 Hyacinths in pots (one bulb in each pot), in not less than 40 varieties and not more than 3 pots of any one variety. *Open.* First Prize, £7. Second Prize, £5. Third Prize, £3.

100 pots of Tulips (three bulbs of one variety in each pot), to include 50 varieties at least and not more than 2 pots of any one variety. *Open.* First Prize, £4. Second Prize, £3. Third Prize, £2.

At least six days' notice must be given of intention to compete.

"The Horticultural Directory."—We have received a copy of this useful publication from the office of the *Journal of Horticulture*, 12, Mitre Court Chambers, Fleet Street, London. In addition to tables and notes useful to almost every one, this little publication contains a list of nurserymen and of gardeners in Great Britain, and a number of details of special interest to these classes of the community. A book like this lies on the Editor's table from year's end to year's end, which is the best testimonial that can be given as to its utility.

"One and All Gardening."—A "popular annual" that deserves its name, for the articles are good of their kind, always interesting, never dull, and sometimes surprising; for instance, we did not expect to find a portrait of Mr. Herbert Spencer in a garden annual, but there it is, and there is better reason for its insertion than for the intrusive mention of celebrities who happen to be fond of their gardens, but have otherwise no claim to be immortalised in garden periodicals.

More Open Spaces in London.—Two more lungs have just been added to the long list of those in the enjoyment of London. The first is a large extension of Brockwell Park, which will augment the area of that suburban retreat by one half. It has been acquired at a cost of £64,500, of which the London County Council has contributed £32,250, and adjacent Borough Councils the remainder. The second open space is to be known as Wandsworth Park, just by the Putney Bridge Road, the acquisition of which has cost some £33,000. This has a fine frontage to the road.

National Rose Society. — A meeting of the General Purposes Committee will be held at the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday, the 10th inst., at 11.30 A.M., for the purpose of drawing up the schedule of prizes for the Temple Show. There will be no other meeting of the Committee during the present month. *Edward Mawley, Hon. Sec.*

Medicago arborea.—In the *Journal d'Agriculture Pratique*, M. Ed. Andre calls attention to this shrub, which he calls the Tree-Lucerne. It is a native of southern Italy and the Greek Archipelago, and has become naturalised in some parts of Provence. It is a plant which bears drought and a salt-laden atmosphere; it was therefore thought it would form a valuable forage plant in regions with a similar climate to that of the Mediterranean coast; this assumption is borne out by chemical analysis, which shows a percentage of nitrogenous substances of no less than 13·12. Fearing that possibly there might be some poisonous property in the forage, such as is known to occur in some other Leguminous plants, experiments were made cautiously in feeding animals with it, with the result that, while the forage proved acceptable to the animals, no harm accrued from its use. M. Anré then considers himself justified in recommending the cultivation of the Tree-Lucerne as a forage plant, and gives some details relating to its cultivation and propagation. It should be cut in spring, as soon as the foliage is fully developed, and a second crop may be obtained later on.

A New Rubber-producing Plant.—M. E. de Wildeman describes in the *Comptes Rendus*, 1902, p. 400, a new species of Clitandra (Apocynaceæ), from the Congo. The species is called C. Arnoldiana, and the caoutchouc is obtained by boiling the latex or milky juice with water.

Gardening Studentship.—Mr. John Ettle, F.R.H.S., County Instructor in Gardening, states that the Somerset County Education Committee has founded a gardening studentship of the value of £35, to be tenable for one year at the Bickenhall Experimental Farm, near Taunton. It is open to pupils in the Continuation School gardens, and has been won this year by Mr. Ernest Shearn, who was first-prize winner in 1901-2, at the Paulton centre. There will be, this year, school gardens in sixteen centres, with about 220 pupils.

"Etudes sur la Flore de Katanga."—This is one of the publications published under the auspices of the Government of the Congo. The author is M. Em. de Wildeman, whose name affords a guarantee for accuracy and judgment. Katanga is in the S.E. of the Congo State, and its flora is therefore like that of the country around the great lakes, that of Eastern tropical Africa, and to a less extent that of the south of the basin of the Nile, Mozambique, and Zambesi. It has less relationship to the vegetation of West tropical Africa or of the Central Congo. The collections of M. Verdick contain a large number of novelties, which are described by M. de Wildeman or M. Durand, who have been assisted in the determination of some of the plants by the officials of the Berlin Herbarium. Many of the plants are illustrated by 4to lithographic plates, beautifully executed, and with full details, for which the botanist will be thankful. None of the plants in the present fascicle is of special horticultural interest.

The Surveyors' Institution. — At the ordinary general meeting, held on Monday, February 23, 1903, the President (Mr. Arthur Vernon) in the chair, a paper was read by Mr. Henry Lovegrove (Fellow) entitled "Regulations for Protection from Fire." A discussion followed and was concluded. The next ordinary general meeting will be held in the lecture-hall of the Institution on Monday, March 9, 1903, when a paper will be read by Sir John G. Barton, C.B. (Fellow), Commissioner of Valuation for Ireland, entitled "Valuation for Rating in Ireland."

Passmore Edwards' Settlement, Tavistock Place, W.C.—An address with lantern illustrations will be given at the Settlement by Wilfred Mark Webb, F.L.S., dealing with "Nature-Study, and what the Schools are doing," on Saturday, March 7, 1903, at 8 P.M., admission free. Teachers are specially invited. The following is a synopsis of the Address:—(1) As a part of educational groundwork; (2) As a preparation for a scientific training; (3) As a resource for leisure hours. The origin of modern Nature-study; its advantages — educational and economic—the facts upon which it depends—methods and means of Nature-studies.

The Hammersmith Industrial Exhibition Society.—In connection with the 17th annual Exhibition of Arts, Crafts, and Industries, which will be opened on May 4, 1903, in the Town Hall, by H.R.H. the Duchess of Argyll, a special "Nature-study" section has been organised. This section has been organised by W. Mark Webb, F.L.S. Information in regard to definite exhibits will be afforded by Miss Yeldham, hon. secretary, 12, Luxemburg Gardens, Brook Green.

Charlock.—Mr. Strawson's report for 1902 shows that the Charlock can be destroyed at any period of its growth by copper sulphate, and that whilst the plant is young and soft of fibre, a smaller quantity will effect the purpose than when the plant is older. Fifty gallons of 3 per cent. solution favourably applied to young plants will destroy 95 per cent. of the weed in an average infested crop; in fact, it will destroy all except those few plants that are shaded by other leaves from the spray, and this quantity and strength will affect the corn crops so slightly, that an increased yield of corn more than sufficient to pay all the expenses of spraying may with confidence be looked for. On the other hand, if the weed is sprayed when much older, more copper is required, and this gives a shock to the corn-plant which prevents the likelihood of any material increase in the yield, besides which it must be remembered that the older the weed the more it has robbed the soil, and shaded the corn from the sun. It may be permissible to suggest that those farmers (and there are hundreds of such) that now know from experience the benefit of this work, could do much good to their neighbours by showing them the results on crops that have been sprayed under favourable conditions. In order to exhibit the striking effect of spraying, a breadth of the weed should be left unsprayed in each field, or perhaps better, keep some plots unsprayed by covering them at the time with a sheet or old bags. Neighbouring farmers visiting these fields a week afterwards would then have an opportunity of seeing in well defined contrast the difference between sprayed and unsprayed crops. For successful working the chief points to remember are:—To have everything in readiness well beforehand, and the labourer trained so that it is only necessary to give the order to start when the weather is fine; the material must be pure and correctly measured, and the spray fine so as to cover every plant. Successful spraying should result in average increase in yield of corn from four to six bushels per acre, and the destruction of 95 per cent. of Charlock; but when the weed is in dense mats, one plant overlapping another, a smaller proportion will be killed, but the increased yield of corn will be greater. At the present time I see no reason to alter the main conclusions arrived at in 1901. They have been thoroughly corroborated by extensive experience in 1902, and with slight additions, are as follows:—1, That Charlock can be destroyed in growing corn crops without injury to the latter, by spraying with 50 gallons of 3 per cent. solution of pure sulphate of copper per acre. 2, That generally the corn crops are much improved and give a better yield where Charlock is destroyed, and that young grass-seeds and Clover in the corn remain uninjured. 3, That spraying early when the weed is young and in soft fibre, is most successful. 4, That the larger sprayers with powerful pumps are more successful than the smaller machines. 5, The profit of the operation is diminished in proportion to the delay which occurs after the Charlock is in the most suitable condition for being destroyed. 6, That the increased yield of corn by the destruction of Charlock leaves a profit, after all the expenses of spraying have been defrayed, and that the annual value of all Charlock-infested land will increase until the extermination of the weed is complete.

Flowering of the Victoria Regia.—According to the report of M. Fischer de Waldheim, the Victoria Regia in the Imperial Botanic Garden at St. Petersburg, flowered last year less abundantly than usually. Nevertheless the two specimens produced forty-two flowers; in early June they had put forth three flowers, by

the end of the month nineteen, in July ten, in August eight, and in September two. A considerable amount of seed was collected, so that the Garden was able to distribute some. Many other large gardens had no seed to exchange, owing to the weak growth made by the Victoria last year. Experiments made with regard to the germination of the seed gathered in the Garden proved that a heightened temperature was favourable to it. Thus, of a hundred seed sown on January 20, and cultivated in a temperature of 84° to 92° F., seven germinated in thirty-nine days. Of a hundred sown in a temperature 92° to 99·5° F., twenty-five seeds germinated in the same period of time.

FOOD OF PLANTS.—In the course of an address on "Educational Science," Professor ARMSTRONG, V.P.R.S., spoke of the importance of a sound knowledge of the preparation of food in the household, and made the following interesting reference to the food of plants:—"Could we find tongues in trees we should doubtless find them eloquent on the subject of food supply, and far more delicate in their tastes than any mortals. But how many of us, looking at a green leaf, can in any way call to mind the wonderful mechanism which enables the plant to secure the main bulk of its solid substance from the fleeting stores in the atmosphere; or the manner in which it is dependent on light; or its mineral needs; or its great need of water, and its wonderful transpiratory activity? And yet the chief industry of the world is agriculture—the feeding and tending of plants. At least, those who lead a rural life should have their imagination excited on such subjects at school; it is even possible that much of the asserted dulness of country life might pass away if an interest in plant activity were properly cultivated. And schoolmasters might even find comfort in the reflection that, as Messrs. BROWN and ESCOMBE have recently shown, the translocation of the material first formed in the leaves, metabolism and growth are become so intimately correlated that the perfect working of the entire plant is only possible in an atmosphere containing the normal amount of three parts of carbon dioxide per ten-thousand; they might recognise in the plant an organism after their own heart, with ripened conservative instincts, and unwilling to accept any other than the limited diet long favoured by the craft."

"THE QUEENSLAND FLORA."—The sixth and concluding part of Mr. F. MANSON BAILEY's *Queensland Flora*, extending from the Alismaceæ to the Ferns, with appendix and index, has lately reached us. In plan it follows the other colonial floras, but with such slight modifications as circumstances rendered necessary, and with the addition of eighty-eight lithographed plates, which add considerably to its value. The *Flora* is not only valuable in itself, but also by reason of the proximity to New Guinea. The Flora of Queensland is thus intermediate, as it were, between the Malayan Flora and that of Australia proper. Reference is made in the appendix to Mr. BRITTEN's *Illustrated Botany of Captain Cook's First Voyage*, recently rescued from oblivion. Much pains have been taken also to collect the names of plants as employed by the aborigines, and to give information concerning the uses of plants. A most substantial and valuable addition to systematic and geographical botany has thus been made, for which botanists will feel grateful to Mr. BAILEY, whilst those concerned in the development of the resources of the colony will also have cause to be thankful for the patient labour and judgment of the colonial botanist.

PALMS.—M. BARBOSA RODRIGUES, the Director of the Botanic Garden, Rio de Janeiro, is about to publish a work entitled *Sertum Palmarum Brasiliensium*. This is to consist of descriptions of no fewer than 174 new species of Palms, detected by the author in the course of his journeys in the forests of Brazil, Peru, Bolivia, Paraguay, and the Argentine Republic. The text is to be in Latin and in French, and is to be accompanied by 174 imperial folio coloured plates, from original drawings made by the author, in addition to woodcuts. In addition to the strictly botanical details, information is to be given concerning the utility, geographical distribution, and the native names of all Palms occurring in Brazil, with a bibliographical record and ample synonymy. The book is to be "got up" in the finest style by Belgian printers and lithographers, and is limited to 300 copies A specimen copy before us shows that the work will be one of the most important illustrated works ever issued. It is intended as a continuation of VON MARTIUS' famous *Historia Palmarum*. Intending subscribers should apply to MM. DULAU & Co., publishers, 37, Soho Square. The subscription price for the two volumes is 500 francs (£20).

THE IMPORTATION OF GERMAN SEEDS TO N. ZEALAND.—As marking the growing importance of the trade of Germany in the matter of seeds, we learn from *Thalacker's Allgemeine Samen und Pflanzen Offerte*, that in the year 1900, Germany exported seeds to the value of £1,042 sterling, and in 1901 of £5,302, to New Zealand.

MARKET PRICES IN DURBAN.—It may be interesting to some of our readers to note the latest prices of fruit and vegetables at Durban, which are as follows:—Apricots, 2*s.* 6*d.* per 100; Apples, 2*s.* 6*d.* to 4*s.* 9*d.* per 100; Bananas, 2*s.* per 100; Cabbages and Cauliflowers 3*s.* 6*d.* to 5*s.* 6*d.* doz.; Grapes, 3*d.* to 6*d.* lb.; ground nuts, 5*s.* 6*d.* per sack; Lemons, 5*s.* 6*d.* to 11*s.* 6*d.* per 100; Lettuces, 1*s.*, and Limes 1*s.* 6*d.* to 2*s.* per dozen; Onions, 20*s.* per bag; Oranges, 7*s.* 6*d.* to 10*s.* per 100; Green Peas, 4*s.* 6*d.* per basket; and Pineapples, 1*s.* to 1*s.* 6*d.* per dozen.

THE NURSERY AND SEED TRADE ASSOCIATION, LIMITED.—The annual general meeting of this Association was held at the offices of the Association, 30, Wood Street, Cheapside, London, on the 24th ult., the President, N. N. SHERWOOD, Esq., in the chair. The report of the Association for 1902, which was presented to the meeting, showed that 956 status enquiries had been made for members during the year, and debts amounting to £4,269, which the members had been unable to collect, were collected by the Association on their behalf. Twenty-one members joined the Association during 1902.

PRESENTATION.—Mr. ALFRED CHAS. WOOD, head gardener at East Garth, Westoe, South Shields, completed his twenty-one years' service on February 14 last, and Mrs. ELTRINGHAM and family presented him with a gold hunting watch having a suitable inscription. Mr. A. C. WOOD has also been twenty-one years on the Staging Committee of the South Shields and Northern Counties Chrysanthemum Society. He is well known, highly respected, and comes of an old gardening family, his father having been for many years head gardener to the late Lord RAVENSWORTH at Fulham, S.W.

THE GALE.—We learn from Dublin that the hurricane on Thursday night, February 26, was very disastrous. Gardens, parks, woods, and buildings suffered severely, and many thousands of trees were uprooted. It was the worst storm of the kind in Ireland since that of 1839.

GRAHAME MEMORIAL FUND.—It has been very widely felt amongst rosarians and others that the remarkable services to Rose-culture of the late Mr. C. J. GRAHAME ought to be commemorated by some adequate memorial. Mr. GRAHAME's services to horticulture in general, and to the National Rose Society in particular, were of no ordinary kind. He was an enthusiastic lover and grower of flowers; he was one of the best and most appreciative of judges, especially of Roses; he was always ready to help any flower show with his accustomed liberality; and his gifts include a beautiful Challenge Cup for the smaller growers at the National Rose Society. But his special service was the establishment, after much contest, in which at first he was almost single-handed, of the present system of classes at the National Rose Society's exhibitions, according to the number of varieties grown, which in 1892 for the first time gave the smaller growers an adequate chance in the competition. The great value of this reform is now undoubted, and has been generously acknowledged by those who at first opposed it. If it were for this reason only, there ought to be some memorial of him; but Mr. Grahame's friends were so numerous and so warmly attached to him, that we cannot doubt that an opportunity of the present kind will be very widely welcomed. Subscriptions are earnestly requested as speedily as possible, much time having been already lost. They should be sent to Captain RAMSAY, Yvery House, Fareham, Hants. Cheques should be crossed "Capital and Counties Bank."—JOHN RAMSAY, Yvery House, Fareham, Treasurer; G. E. JEANS, Shorwell Vicarage, I.W., Secretary.

BELVOIR CASTLE:

THE STATUARY GARDEN.

(*Continued from p.* 121.)

[SUPPLEMENTARY ILLUSTRATION].

THE present illustration represents the Statuary Garden, which is situated near the one previously figured, but some 40 feet below it, and a fine view of it is obtained from the top of the bank. The plants shown in the beds here comprise Abutilon Thompsonianum, Ricinus Gibsoni, Veronica Andersoniana variegata, Dactylis glomerata elegantissima, Stipa glauca, Antirrhinum Black Prince, variegated Maize, Tropæolum hederæfolium, Violas, Calceolarias, &c. The group of Palms shown in the centre consists of five large specimens of Trachycarpus excelsa (Chamærops), 9½ feet high, received from Italy in August, 1899, which have survived the last three winters with a little protection from mats during hard weather; and since they were planted they have produced ripe seeds from which plants have been raised. The white mass in the distance is a tree of Acer Negundo foliis variegatum, and behind it are two very fine specimens of Spruce Fir, Picea excelsa, the one on the left is 120 feet high, and 8 feet 7 inches in circumference of stem.* The six statues are of life size, were carved by Caius Gabriel Cibber, in 1680, and the agreement between him and John, 8th Earl of Rutland, is preserved in the Castle. It stipulates that the statues should be set up in the garden for the sum of thirty-five pounds each, the Earl to find the said Cibber and two of his "workemen diett and lodging at Bellvoyer whilest he workes upon the said statues," and to pay for the carriage of the stone, and that they should be of Ketton stone. They are in excellent preservation, and represent Juno, Ceres, Flora, Bacchus, Pomona, and Diana. Another larger one on the top of the bank close by, represents Winter, and belongs to the same set. The flower-beds in this garden were laid out in their present form by Challis, who was head gardener here in 1847.

Below the Castle on the south side, is a series of terraces at varying heights, the soil of which is retained in position by massive stone walls; these are probably the same "hanging gardens" referred to in some verses written in 1679, although nothing remains now to indicate so great an age; the walls are well

* To prevent repetition, all circumferences of stems mentioned are taken three feet from the surface of the ground.

covered with Magnolia grandiflora and M. Soulangeana, Grape-vines, Banksian and other Roses, Chimonanthus præcox, Jasminums in variety, Photinia serrulata, Azara microphylla, Abutilon vitæfolium, Rhus Toxicodendron, Forsythia suspensa, Escallonias, Honeysuckle, Muehlenbeckia complexa, Punica Granatum, Buddleia globosa, &c., many of which are very large specimens.

On a grassy bank below is a fine tree of Cupressus Lawsoniana, planted in 1866 by his Majesty the King when Prince of Wales. It is now 43 feet high and 3 feet 5 inches in circumference of stem. There are also several smaller specimens, planted by other members of the Royal Family. Close by are various plants brought from the south of France by the present Duke. Photinia japonica (Eriobotrya) is now 6 feet high, and it is protected by bracken in severe weather; a plant of Choisya ternata, 5½ feet high and 8 feet across, which flowers freely every year, and receives no protection; some fine plants of Cistus salvifolius, Erica mediterranea, &c. On a lower walk, a plant of Arbutus andrachne deserves to be mentioned; also one of Leptospermum scoparium, which proves hardy here, and flowers freely. A conspicuous object for some distance is a column of Ivy, 59 feet high; this covers the stem of an old Scotch Fir, which lost its top in a gale early in 1894. *W. H. Divers.*

(To be continued.)

HOME CORRESPONDENCE.

ROYAL HORTICULTURAL SOCIETY.—In your report of the Annual General Meeting of this Society, published by you on the 14th inst., the chairman, Sir Trevor Lawrence, is reported to have said: "He had had frequent conferences with members of the Botanic Society, and he found that any amalgamation would be financially impossible. The Botanic was deeply in debt." He then goes on: "He did not wish to say anything against the Botanic Society or any other society, but the Botanic Society had taken to methods of raising money which were different to those followed by the Royal Horticultural Society. They had taken to clubs, bazaars, and dances, and things of that sort—useful and amusing no doubt in their way; but they were not horticulture, and the very worst thing the Royal Horticultural Society could possibly do would be to associate themselves with the Botanic." As regards the "frequent conferences" to which the Chairman refers, the only official communication made to the Horticultural Society by the Botanic Society was in the letter of Lord Lister, dated December 4, 1901. In that letter was enclosed a copy of a resolution passed by the Council, "that a communication be sent to the Royal Horticultural Society inviting that Society to hold some or all of their shows in the gardens or buildings of the Botanic Society, and assuring them that co-operation between the two societies, with a view to advance the interests of horticulture, is greatly desired by the Royal Botanic Society." His Lordship then went on to recount some of the unique advantages possessed by the gardens of the Botanic, but that amalgamation was ever contemplated is absolutely a new idea to the Council. The statement that the Botanic was "deeply in debt" is absolutely incorrect, and is calculated to injure that Society. It is perfectly true that the Society has not freed itself from its debenture debt, and it never intends to do so until they are honourably paid in full, for which purpose it has started a reserve fund. That the new lease secured to the Society upon most favourable terms, together with the increased income of the Society, has placed it in an excellent and improving position. The Chairman expresses a wish not to say anything against the Botanic Society, and immediately proceeds to do so, objecting to the methods of raising money which were different to those followed by the Royal Horticultural Society. Those who remember the circumstances of the old Horticultural Society, will not be sorry that the methods are different, and the objection that we have taken to clubs, bazaars, and dances as not horticulture, causes one to read with interest the announcement on the site of the proposed Hall to be erected by the Horticultural Society in Vincent Square, Westminster, which is as follows:—"The Society proposes to use the new Hall for Public Exhibition, Concerts, Meetings, and Entertainments of the like kind, and will apply to the London County Council for a license for music and dancing." This, of course, is horticulture! As regards the statement that the Horticultural had not succeeded in securing a portion of one of the Royal Parks for the purposes of their Society, if there was ever any fear of such a grave misuse of a public park, the public may be congratulated that that fear is at an end. I can quite understand that the Royal Botanic Society is a serious rival, with its many natural advantages to a Society largely depending upon the promised attraction of its proposed Hall in Westminster, including its Music and Dancing License, but I venture to assert that this does not justify such grave inaccuracies on the part of the Chairman, and I am sure I need only appeal to your sense of fairness to secure like publicity to my communication in reply. *John Hutton, Chairman Finance Committee, Royal Botanic Society, Regent's Park, Feb. 26, 1903.*"

GINSENG.—Will any of your correspondents who may have had some experience in the cultivation of Ginseng, kindly give me some information as to the best methods adopted for the cultivation of this plant? A young farmer friend of mine, just home from an eighteen months' run through parts of Canada and the United States, seeing the rich soil of my place here, said he thought I might be able to grow Ginseng. In New York State the plants have to be shaded from the sun; if once the plants get "sunstroke," he understood the people to say, these plants would do no more good, but as we have much less sunshine here than where he saw it growing in America, in his opinion, it might succeed in this country. When successfully grown, the cultivation of Ginseng is exceedingly profitable. My friend related to me an instance of a family, who, through some misfortune, have about lost their all; but they had on their farm a good breadth of Ginseng, which, when sold, yielded sufficient to tide them over their difficulty. The market for the root is found amongst the Chinese, who eat pieces of the root when they are weary or exhausted through overwork. It acts as a stimulant, and perhaps a far more wholesome one than tea, beer, whiskey, or other drinks we, in this country, fly to. Ginseng was made known to Thornton, who describes its medical virtues in his *Family Herbal*, from which I quote the following:—"Jartoux, speaking of the effect of the plant on him, says, 'I observed the state of my pulse, and then took half a root raw; in an hour I found my pulse much quicker and fuller. I had an appetite, and found myself much more vigorous, and I could bear labour much better and easier than before. But I did not rely on this trial alone, imagining that this alteration might proceed from the rest we had that day; but four days after, finding myself so fatigued and weary that I could scarce sit on horseback, a mandarin who was in company with us perceiving it, gave me one of these roots. I took half of it immediately, and an hour after I was not the least sensible of any weariness. I have often made use of it since, and always with the same success'" (*Phil. Trans.*, vol. xxviii., p. 239). Thornton gives the Latin name of Ginseng, Panax quinquefolium. *W. Miller, Berkswell House.*

A PROLIFIC POTATO.—The firm of Messrs. Sutton & Sons, of Reading, noted for the fine Potatos they have raised, have made a notable discovery among a batch of seedlings raised in 1899 of a variety that seems in productiveness to exceed in cropping capacity any variety hitherto brought out, and not unnaturally they have named the variety "Discovery." In the early spring of 1899, this remarkable Potato was represented by a single tiny set, and in the autumn of that year by a single plant. In the autumn of last year, 1902, just three years from the lifting of that one root, the stock has grown into some 80 bushels—truly an enormous increase, and one that is probably unexampled, and consisting throughout of tubers fit for consumption, and of good size, not of gigantic Bovinias, or huge, ungainly tubers, fit only for cattle food. The tubers of Discovery are partly round, partly pebble-shaped. I have seen the stock, and like its appearance greatly. The variety is even yet regarded by the firm, in spite of its being a couple of tons, as a very "limited" stock. That is quite correct from their point of view, as it will not be until they can hold from 50 to 100 tons that they will think they have an ample stock. Only last autumn they had to send out to South Africa the enormous quantity of 240,000 cases of medium dimensions of Potato tubers, all hand-picked, for planting there; whilst the ordinary South African orders are always heavy ones, and have to be got away in the autumn. It is so interesting to find that the south has been active in Potato production as well as the north. Probably some Northerners will say, "Wait until you see our great new one from Markinch." I am sure we should be delighted to see both at Chiswick this summer. *A. D.*

GRAFTING THE PEAR ON THE QUINCE.—Recently, I put two scions of Pears on Quince stocks by the fishing-rod method, and covered them with the indiarubber tape that electrical engineers use for making joints. I began whip-grafting thirty years ago, but gave it up long ago for slip-and-tongue. This is the third year I have used the method; it is easier than any other, and answers admirably when the stock is not much larger than the scion. If a tie is put round both stock and graft before the graft is pressed down into its place, the tie is tightened by the pressure used in forcing the graft down, so that contact of the bark is perfect at the top and bottom. The indiarubber tape is cut to the length required to exclude the air, warmed in the pocket, stretched a little, and wound round the stock and graft, beginning at the bottom, and one drop of bicycle solution secures it. Matting is tied loosely around the indiarubber. *Henry Rogers, Hartley, Plymouth.*

BANANAS HOME-GROWN.—At this time of the year, when dessert fruit is somewhat scarce, home-grown Bananas make a welcome change. We have a large house devoted to them, and for the past three months, six plants have borne fruits vastly superior to any that are imported. These plants are planted in round tubs 30 inches in diameter, round the top of which, as soon as the bunch is fully developed, a sheet of zinc about 12 inches wide is placed on the inner side so as to allow them to be more liberally treated. When I was at Sandringham, the late Mr. Penny, then head gardener to the Prince of Wales, used to grow Banana plants successfully at the ends of the Pine-stoves in tubs. From the time a sucker is taken from an old plant till fruit is formed, is about eighteen months or a little more; there are advantages and the contrary in this method. At Paddockhurst we cultivate twelve plants on a stage measuring 17 feet in length by 7 feet in width. In tubs the plants are under more complete control as to feeding and soil, &c., than when in beds; the bunches are perhaps not so large, but about one hundred fruits or more grow on a bunch. *A. B. Wadds, gr., Paddockhurst, Sussex.*

BEGONIA GLOIRE DE SCEAUX.—I was very much struck, when going through the gardens at Park Hatch, Godalming, the other day, to see a very fine display of this handsome Begonia. The plants occupied the entire side of a lean-to house, and certainly the large trusses of rosy-pink flowers, set off by the handsome bronzy metallic foliage, presented a remarkable sight. *W. H. Bailey, Oxshott.*

FRUIT-ROOM.—I think if "Subscriber" has any quantity of Apples and Pears to store, he would find it rather expensive to build a room where the fruit could lay singly on stone slabs. Most gardeners agree in excluding light as much as possible, and in preventing much fluctuations of temperature. For this reason, I think there is nothing better than a thatched building, and it is of very simple construction—just the framework of wood, and then a thatch of reeds or straw on the top, and sides a foot or 18 inches thick,

with a thatched framework to fit over the door in hard weather. It can be fitted inside with shelves or trays; but where the quantity of fruit to be stored is very large, I have found that Apples will keep quite as well in half-bushel baskets about three-parts filled, and stood one on top of the other, and in this way I have kept them till the end of April. *H. Du Rose, Stanwell Moor.*

THE SEASON.—The past month has been the mildest for the last twenty-four years. The day (maximum shade) temperature for the month averaged 50°, which is 5° above the London averages, and no less than 15° above the exceptionally cold February of 1895. Five gales blew during the month, but without any bad effects except to newly-planted trees. Apricot blossom is remarkably fine this year, and well distributed over the trees, even on north walls, and on standards in the open. I have never seen finer blossoms or more of them, and this notwithstanding the sunless summer of 1902. The season is about three weeks "forward" compared with recent seasons, most of which have been late. I gathered Tulipa Kaufmanniana fully expanded in the open border on February 25. Japanese and other Oriental Acers are dangerously advanced; and some are already in leaf. *A. Worsley, Isleworth.*

SECTIONAL BOILERS.—Noticing your remarks about sectional boilers for garden purposes, I am surprised that they are not more in use in private gardens. I do not know what kind Mr. Wilson has at Chevet Park, but I have had fixed here two horizontal tubular boilers, working over 8,000 feet of 4-inch piping. These boilers have been substituted for two Trentham boilers of 10 feet and 11 ft. in length, which I believe never gave satisfaction, owing probably to bad setting. These sectional boilers were fixed in position with very little trouble, not much brickwork being required, and no machinery for lowering them into the stoke-hole. Every piece was handed to the fitter by his assistant, and they were fixed for a little more than half what one Trentham would cost, and the saving of fuel is very considerable. They are no trouble to stoke; the fires can be banked up early in the evening, with the certainty of having the proper degree of heat in the houses in the early morning. The pressure here is about 20 feet, and for a boiler to work under that amount of pressure I can recommend this kind of boiler. I should be pleased to show them to anyone, or afford particulars concerning their working. *J. Hill, Ruxley Gardens, Claygate, Surrey.*

CALANTHE VEITCHI.—I did not enter into full cultural details of the above Orchid in my note a fortnight ago, as Mr. Fulford had done so a few weeks previously. I ought perhaps to have been more explicit as regards the kind of structure our plants are grown in. Our Melon and Pine-range is in reality more of a pit than a house. It is span roof, runs east and west, the path up the centre is sunk 6 inches below the ground level; the width of the pits is 15 feet, and the height from the path to the ridge is but 6½ feet. The pots are stood on wooden trellises or pieces of slate placed on top of the bottom heating materials for the Melons, which consists of Oak and Spanish Chestnut-leaves, with the usual hot-water pipes beneath them. This leaves the plants about 2½ feet from the glass roof, and they are placed on either side of the walk, and are moved from one division to another as the Melon-plants become dense in foliage, though at times for want of space they perhaps remain there a bit longer than is good for them; still, many of the flower-spikes, and it is quite safe to say the majority, carry from thirty-five to forty blooms each, and many of the pseudo-bulbs carry two flower-spikes. Our plants are usually potted the second or third week in March, placing one in a 5½-inch pot, or three in a 6½ or 7-inch pot, according to the size of the pseudo-bulbs. *J. Mayne, Bicton.*

PHEASANTS AND CROCUS-CORMS.—I am astonished that none of your correspondents have recommended coating the bulbs of Crocus, Tulips, Narcissi, and other bulbs, with red-lead; doing this will effectively keep pheasants and other depredators from interfering with them. First

F.G. 62. OAKS FROM CHATSWORTH.

spread out the bulbs and corms in shallow boxes or trays, drop a little Olive oil on them, and then gently shake them, in order to coat them with the oil; now shake a little of the red-lead over them, and gently shake them again, so that each bulb becomes coated. I venture to say that neither pheasant, mouse, or bird of any kind will interfere with them. I also adopt this plan with most kinds of seeds. With regard to the Quassia-chip extract, it is excellent. We could not possibly keep a single Crocus in the turf or beds here until I syringed them with the extract. Both pheasants and hares had molested the Crocuses. Of course, heavy rains will wash the bitterness away, and repeated syringings will be necessary in rainy weather. One more remedy I may call

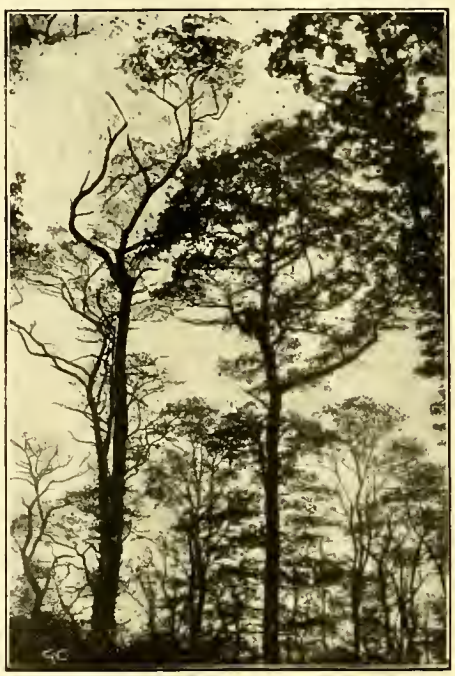

FIG. 63.—OAKS FROM CHATSWORTH

attention to, viz., gas-water. If a few gallons of clear water be placed in a vessel containing a small quantity of gas-tar, and after this has stood on the tar a few days, and then skimmed off carefully, taking care not to disturb the tar, and further diluted with water, so that it is not too strong, and the bulbs or their leaves are syringed with it, no hares or pheasants will go near them, and I know of nothing better for preventing the birds from molesting fruit-buds. I have also mixed the Quassia-mixture with the tar-water. The tar causes the water to adhere to the trees more firmly than it otherwise would, and is not so easily washed away by rain. I hope these few hints may be useful to those troubled with pheasants and other birds, hares, &c. *Thomas Arnold.*

A TWIN-FLOWERED ABUTILON.—I have forwarded you an Abutilon with two flowers on one stalk. I do not know if it often comes like that, as I have never seen one before. I should like to hear through your paper, as I am a *Constant Reader.* [We never saw such a case before in Abutilon. ED.].

PEAS AND NITRATE OF SODA.—Having read Mr. Slade's interesting remarks on Peas in the last issue of the *Gardeners' Chronicle*, may I be allowed to make a few remarks upon the subject. My experience with Gradus has been similar to his. I tried it for several seasons in the hope that it would prove what it was advertised to be, but every year my expectations were disappointed. As a main crop Pea, Yorkshire Hero cannot be excelled if the season be dry. Dr. McLean is also an excellent variety. In regard to the effect of nitrate of soda upon the yield of Peas, I find that this manure does not improve the crop of Peas in the least in a season like that of 1902. I applied nitrate to several rows of Peas last spring, and the only difference noted was that the haulm grew 2 or 3 feet higher than in the case of varieties not afforded nitrate of soda. On the other hand, last season was an ideal one for Peas to which basic slag three-quarters, and kainit one-quarter, were applied the previous winter. *J. Murray, Sopley, Christchurch.*

SESSILE AND PEDUNCULATE OAKS.

ON September 22, 1900, a paper of mine appeared in the *Gardeners' Chronicle* on "Oecological, or adapted, differences between the sessile and pedunculate Oaks," in which I attempted to show the reasons why the former thrives on drier soils than the latter. I explained that in the sessile Oak, the leaves being on long petioles, did not absorb much water from the twigs of the tree, and that owing to their leathery nature, they did not part with their water so readily; while the bark of this tree is harder and thicker than that of the sessile Oak, and especially its bast more abundant, containing more tannin.

As regards the acorns of the two Oaks, that of the sessile Oak is close to the twig, where it obtains water more readily, and is sheltered by the foliage from the heat and excessive transpiration; the acorn of the pedunculate Oak is on a long peduncle, and thus comes beyond the leaves into the sunshine, so that it can mature more readily in the damper air where the pedunculate Oak thrives, the sessile Oak getting more heat on hillsides, and its acorn consequently requiring more shelter from the foliage.

The ramification of the trees is similarly adapted to their requirements, that of the pedunculate Oak being much more open, and admitting sunlight to all parts of the tree and to the ground, which, in its proper habitat, being very moist, is not exposed to desiccation so readily as the drier soil below the sessile Oak. The latter, on the contrary, produces a much denser crown of thick, dark green, coriaceous leaves, the comparative weights of sessile and pedunculate Oak-leaves being as 34 : 40 for leaves of equal surface (Mathieu). I also referred to the Turkey Oak

(Quercus Cerris) as having the same properties as the sessile Oak, but in a more marked degree, hard leaves on petioles, a shady crown, acorns sheltered by bracts on their cups, the latter covering the seed in the first year, for they take two years to mature, and are situated when mature on the thick twigs of two-year-old wood, where their water-supply is assured, in spite of the dry hot climates of Greece and Turkey, where they are indigenous.

Although these facts have long been recognised by European foresters, they do not seem to have met with much favour from your readers, many of whom criticised my paper severely, saying that my plates showed abortive acorns, the fact being that the acorns were young, picked in August from the Chatsworth woods. One critic also stated that no one would think of growing any Oaks on comparatively dry, sandy soil, the fact being that, given sufficient moisture and depth, Oaks will thrive on very sandy soil. I also made an undoubted mistake in stating that the Chatsworth Oaks were growing on mountain limestone, as the rock was millstone grit. That circumstance, however, is in support of my case, as the millstone grit on Derbyshire hills gives a dry, well-drained soil, which is only rendered moderately moist by the heavy rainfall of the Peak district.

As regards the facts on which I based my inferences that all the Chatsworth pedunculate Oaks are stag-headed and dying (fig. 64), while the equal aged sessile Oaks growing with them on hillsides on the millstone grit are flourishing, Mr. J. P. Robertson, the forester of the Chatsworth estate, has confirmed this in the most striking manner. He has sent me three photographs of these Oaks, which I enclose, and in every case the defective Oaks are pedunculate, and the flourishing Oaks sessile; and he has written to me as follows :—

"The sessile Oak (fig. 62) is indicated in the photographs by a white patch near the base of the tree. I am more convinced every day of the advantage of using this variety on light soils. In the wood from which these photos were taken—a very light soil on the millstone grit, altitude 750 to 900 feet, I have carefully compared the sessile with the pedunculate variety, and find the former average nearly one-third more in cubical content. There is a good sprinkling of the sessile, every one being in robust health; while the pedunculate variety is going fast. Indeed, last winter we cut over 600 trees of the latter variety that were back-going, and the fall did not include a single sessile Oak, showing very clearly the advantage of using this variety on light soils. I think it is time that nurserymen should recognise the need of growing each variety separately."

It is a pity that Mr. Robertson did not come to Compiégne this year with the English Arboricultural Society, for there on a hillside, above very sandy soil, we saw what I believe to be the finest sessile Oaks in the world, while the pedunculate Oaks growing near them were extremely poor.

When I wrote the former paper I could have brought forward any number of Continental instances of this failure of the pedunculate Oak on dry soil, but I preferred to have a good example of it from our own country. There are spots, as in Sussex, where both Oaks thrive equally well, as they do in the Ardennes, but the soil is then generally loamy; and Mr. T. Roberts, of Midhurst, has sent me a photograph of both sessile and pedunculate Oaks from the Midhurst woods, both in thriving condition. I am not, however, sure that the tree on the right (fig. 65) is, as Mr. Roberts says, a well-marked sessile Oak, though that on the left is a true pedunculate Oak. In all woods where the Oaks flourish side by side, intermediate varieties appear, and this large Midhurst Oak appears to me, from its foliage, to be an intermediate variety.

Owing to its thicker and harder bark, the sessile Oak does not produce epicormic branches so readily as the pedunculate Oak, and this is another reason for its comparative immunity from stagheadedness on dry soils. It is more liable to frost-crack, and to have its foliage frozen, than the pedunculate Oak, and for this reason also prefers hillsides, where cold air does not stagnate, to low, damp, cold situations. The facts I have stated about the acorns of the two Oaks also correspond with those of the Ilex and Cork Oaks, both of which grow in hot, dry situations, where the acorns require shelter from the sun, and they are consequently sheltered by the foliage of these trees; and those of the latter are almost sessile, while the bracts on the cups are always more developed in these Oaks, as well as in the sessile Oak acorn, than in that of the pedunculate Oak. In the pubescent Oak the foliage is protected against transpiration by a thick reddish-grey tomentum, and this Oak grows on hot limestone hillsides in the south-west of France, and throughout the Mediterranean region, while the pubescence of the leaves and acorn-cups increases as its habitat becomes more southerly.

Fig. 64.—Oaks from Chatsworth.

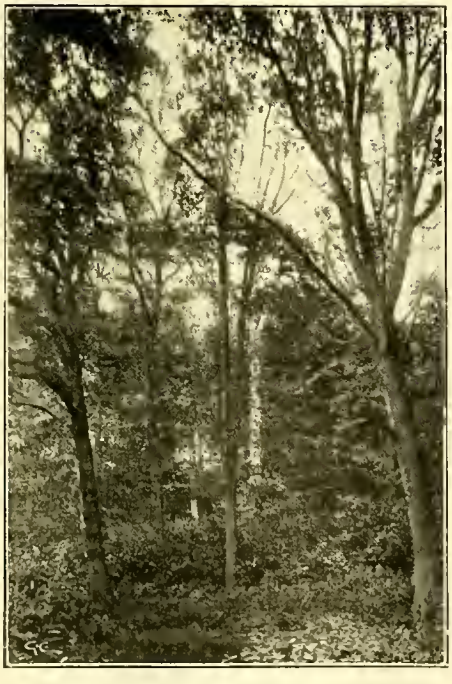

Fig. 65.—Oaks from the Sussex Downs.

In the correspondence in your pages that arose from my former paper, Mr. Clinton Baker gave some figures to show that on sandy loam in Bedfordshire a sessile Oak was growing much faster than a neighbouring pedunculate Oak; while Mr. Divers, of Belvoir Castle gardens, states that pedunculate Oak thrives there on very wet soil, where there is not a single true specimen of the sessile Oak. There is a curious variety of Oak growing on hillsides near Lake Vyrnwy in Wales, the leaves of which are petiolate, while the acorns are clustered together on very short peduncles. It appeared to me to be a kind of sessile Oak, but it is several years since I saw it growing.

Summing up the matter, I believe that Nature has been adapting the varieties of Oaks to their habitats for thousands of years, and that in the process the widely divergent pedunculate and sessile Oaks have been evolved on wetter and drier soils, and now produce acorns from which spring trees like their progenitors. The sessile Oak has abandoned the struggle on wet, low situations, where it fears the frost, and clings to the drier hillsides, leaving river-valleys, and occasionally inundated plains to pedunculate Oak; while on hillsides with sufficient clay in the soil and an abundant rainfall, the two Oaks grow amicably side by side, as we see in the Ardennes, and on the Sussex Downs. *W. R. Fisher.*

LAW NOTES.

A RADISH-SEED CASE.

At the Liverpool assizes, on Wednesday last, before Mr. Justice Grantham and a common jury, the plaintiff sought to recover from defendants damages for breach of warranty as to seed supplied by them. The defence was a denial that any warranty was given.

Plaintiff is a farmer and market gardener carrying on business at Leasowe Road, Wallasey, and the defendants are seed merchants in Manchester. In November, 1901, one of their travellers called upon plaintiff, and asked him for an order for seed, bringing to his notice a certain Radish-seed, which he said he would guarantee to produce 92 per cent. of Radishes. He received an order for two pecks, and afterwards a second one for a larger quantity. The seeds were sown in the usual way, but the Radishes failed to come up as represented, and plaintiff thereupon wrote to the defendants. They replied that the seeds were well tested before being sent out, and that the plaintiff must admit that the weather had been against the germination of seeds. Plaintiff retorted that the weather was not to blame, and took proceedings to recover damages. Counsel stated that plaintiff estimated his loss at £191, after deducting expenses.

His Lordship: A profit of £191 out of an expenditure of £42! I thought market gardening and agriculture were deteriorating in this country.

Mr. Rycroft: That is only a paper profit, my lord.

Plaintiff, in the course of cross-examination, admitted that he had a similar action pending against another firm.

His Lordship: You seem to be making a good thing out of this Radish failure. I see you are making precisely the same claim as in this case.

Plaintiff: Yes.

Mr. Rycroft: Were these Radishes a failure?

Plaintiff: Yes.

Did they not come up?—They came up splendidly.

Well, why do you claim £191 from this other company?—Because there was not a Radish amongst them; they were anything but Radishes.

On the conclusion of the evidence of the plaintiff, his Lordship directed the jury that no warranty was proved, and they must return a verdict for the defendants. Judgment accordingly.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

FEBRUARY 24.—*Present:* Dr. M. T. Masters, F.R.S. (in the Chair); Messrs. Gordon, Bowles, Shea, Holmes, Michael, Saunders, Massee, Worsdell, Douglas, and Baker; Drs. Cooke and Rendle; Revs. W. Wilks, and G. Henslow, Hon. Sec.

Chrysanthemum Diseased. — With reference to the specimens sent to the last meeting, Mr. MICHAEL reported that there were only one or two aphides, but sections showed abundance of eelworms, which had caused the injury.

Cypripedium Fairrieanum hybrids.—With reference to the fact that hybrids of this plant refuse to cross with each other, Mr. JAS. DOUGLAS sent the following communication:—"Some remarks were made at a recent meeting of the Committee on crossing Cypripediums, and a misunderstanding arose thereupon. It was stated as a fact, and so far as I am aware the statement is correct, that hybrids of C. Fairrieanum will not cross with each other. C. Fairrieanum is so scarce a plant in Britain, that with the exception of a small plant in the collection of the President of the Royal Horticultural Society, I am not aware of any other. Consequently, hybridists are anxious to obtain seedlings with as much of the character of this scarce variety as possible. They have made many attempts by recrossing the C. Fairrieanum hybrids in existence, but have always failed, although other hybrid Cypripediums will cross with C. Fairrieanum. For instance, C œnanthum superbum crossed with C. Fairrieanum produced a very scarce and beautiful variety, "Baron Schröder"; C. vexillarium was obtained by crossing C. barbatum with C. Fairrieanum, and this hybrid on being crossed with C. bellatulum produced C. bellatulo-vexillarium, but C. vexillarium was the pollen parent. The object of bringing this matter before the Scientific Committee would be to ascertain why, if other hybrid Cypripediums will cross with each other, how is it that C. vexillarium will not cross with C. Niobe, or why C. Juno will not cross with C. Arthurianum, or any other of the numerous ways in which the C. Fairrieanum hybrids may be crossed with each other? The pollen is potent enough if used on other species of Cypripediums."

Parasite on Daphne Mezereum.—Dr. COOKE sent the following report:—"The mould on twigs of Daphne Mezereum, submitted by Mr. Holmes, consists of dense tufts of Polyactis, with coloured hyphæ and elliptical spores, probably Polyactis cana. In each instance there appears to have been a wound in the bark, upon which the mould became established, but originally it was saprophytic in its habits. Like others of the genus, it may become parasitic, but in this instance there is no indication of its having injured the plant whilst sound, but to have attached itself to wounds already existent."

Alcohol from Sawdust.—Mr. A. RICKMANN wrote to inquire for information as to the probable cause of the difference in the behaviour of Pine and Oakwood sawdust in Europe and America. The process of the manufacture of alcohol from it being identical, the result was that 40 per cent. less of alcohol was obtained in the United States than at Aix-la-Chapelle. The names of the trees of which the wood was employed were not mentioned, but the Committee agreed with Mr. Rickmann's suggestion, that "the American wood must be in its component parts different from wood grown in Europe, in a similar manner as American Wheat is different from English Wheat." The cause of the difference could only be discovered by separate analysis and experimental tests.

Carnation Cuttings Dying.—Mr. E. H. JENKINS sent some cuttings, the upper part of them dying. The cause was pronounced to be the hard stem (not sufficiently herbaceous), which resulted in insufficient root action. The damp weather had possibly encouraged leafy growth, so that the main shoot was drained of its supply of sap. There was no disease present.

Mendel's Principles applied to Calanthe Hybrids.—Capt. Hurst sent the following communication on this subject:—"With reference to the hybrids C. × Oakwood Ruby and C. × Sibyl, sent to the last meeting by Mr. Chapman, and to his expression of opinion that they 'prove the inapplicability of Mendel's laws to Orchids, I may say that if the pedigree of these two hybrids is correctly recorded in Mr. Chapman's notes, it seems quite clear that we have in them a typical Mendelian case, and that Mr. Chapman's opinion to the contrary must be due to a misunderstanding of the Mendelian principles. According to Mr. Chapman's notes, C. × Oakwood Ruby (with darkly coloured flowers) and C. × Sibyl (with pure white flowers) were raised from the same capsule with the following pedigree, which, for the sake of simplicity, I have reduced to Mendelian terms:—

First generation.

C. rosea × C. vestita = C. × Veitchi vars.
Rose × White = Light rose to deep rose-carmine.
Dominant × Recessive = D.R.

Second generation.—D.R. × R. = 1 D.R. + 1 R.

Third generation to seventh generation.—D.R. × D.R. = 1D + 2 D.R. + 1 R.

In this case, therefore, by continued selection of the darkest D.R.'s in each generation, the seventh generation produces the darkest variety, C. × Oakwood Ruby (D.R.), and also the pure white C. × Sibyl (R.), which is in strict accordance with the Mendelian expectation Further, according to the Mendelian principles, C. × Oakwood Ruby, being an impure Dominant (D.R.), should, when self-fertilised, continue to throw dark forms, rose forms, white forms, and all intermediate colours; while C. × Sibyl, if a pure Recessive when self-fertilised, should throw whites only. Here, then, is a fine opportunity for Mr. Chapman, with his well known cultural skill and his Oakwood advantages, to test Mendel's principles by actual experiment."

Cineraria diseased.—Some plants were received from Mr. C. BUCKLAND, Braintree. Mr. Saunders reports as follows from his examination of them:—"The Cineraria plants were in a very sad condition; the leaves were infested by green-fly, and the roots with one of the Poduridæ, or Springtails, I believe by Lipura ambulans, which were present in large numbers, and by some small worms belonging to the family Enchytræidæ, which are nearly related to the true earthworms. They were very abundant, particularly at the base of the roots. They die almost instantly on being placed in lime-water, so that they would easily be destroyed by soaking the soil in which they were with lime-water; but whether they would be reached by watering when on the roots close up to the stem I cannot say. Both the worms and the Springtails are very injurious to plants; the latter do not appear to be much affected by lime-water. Probably a strong solution of nitrate of soda or common salt would have more effect on them, but I do not know of any experiments that have been made on them."

Azaleas and Fumago.—Mr. MORTIMER sent samples attacked by the common Fumago, due to a too close an atmosphere. A good washing would be desirable in such cases. They had also been attacked by Thrips.

Arctic-garden at Kew.—An extract from the *Times* was sent by the Editor of the *Cold Storage and Ice Trades Review*, in which it was suggested that an "Arctic-house" should be formed at Kew, "wherein Dwarf Willows and other curious vegetation of the Polar regions might be seen associated with some pretty effects of snow and ice, which might be produced in summer." It was observed by the Committee that Arctic plants grow better in temperate climates than in the Arctic regions, as Papaver nudicaule, which is found in Spitzbergen, and that many of them are now growing in Kew Gardens, so that the addition of a "cold house" of this character would be superfluous.

Cyclamen monstrous.—Mr. A. SUTTON sent a plant with one or two of the flowers having a foliaceous bract below it, a not uncommon occurrence, inquiring if it is likely to be perpetuated. Mr. GORDON observed that he found a considerable percentage of seeds raised from flowers thus provided with a leafy bract were reproduced; but if it were cultivated, as Mr. Sutton observes, "one flower stem would give an almost perfect buttonhole of a flower and leaf together."

Stone embedded in a tree.—Rev. A. HARVEY, Shirehampton Vicarage, Bristol, sent a photo of a portion of a root of an Ash-tree. It was cut down in 1870; the root had evidently grown over the stone, a not uncommon occurrence.

Experiments at Chiswick.—Mr. GORDON raised the question whether it would not be possible to utilise a house in the Chiswick Gardens for the express purpose of carrying out experiments, chemical or otherwise, which have various bearings in horticulture. After some discussion, in which the members of the Committee fully agreed, it was proposed to reconsider the matter at the next meeting, with the object of laying some suggestions before the Council of the Royal Horticultural Society.

Conifers.—Dr. MASTERS exhibited a large series of cones of various species from Westonbirt, as well as several of the novelties discovered in Central and South-West China by Mr. Wilson when collecting for Messrs. Jas. Veitch & Sons, explaining their localities and other details. A vote of thanks was given for his interesting communication.

LIVERPOOL HORTICULTURAL ASSOCIATION.

FEBRUARY 11.—The members of the above Society had the pleasure at this meeting of listening to what proved to be one of the most interesting and instructive papers of the session. Mr. PAUL, of Manchester, was the essayist of the evening, having for his subject "Stove and Greenhouse Plants for Exhibition." As is well known, no one is more capable of dealing with such a subject than this gentleman, who in past years had exhibited some of the finest specimens ever seen at the Manchester, Liverpool, and other exhibitions. He attributed the decline in the growth of some of the Australian and Brazilian plants at our shows to the death of those fervent and ardent employers whose desire it was to have the largest and best-grown specimens it was possible to produce; whereas the present system aimed at is to secure two, and possibly three, crops of flowers where one was grown in the '60's. The lecturer described the cultivation necessary for the principal exhibition plants of the day.

Mr. FOSTER, chairman of the meeting, expressed a desire that the meetings of the Association in the future might be better attended by the younger members, for whose benefit they are mainly arranged, which would put more heart into the lecturers who so kindly give their services.

DEVON AND EXETER GARDENERS.

THE paper read at the last meeting was one by Mr. SIDNEY BAKER, gr. to Sir Dudley Duckworth King, Bart., Wear House, the subject being "Forcing Vegetables." In forcing Asparagus, Mr. Baker said, unless allowed to buy forcing roots ready for action, the gardener must begin three or four years before by stimulating the Asparagus plants annually with nitrates, bone-meal, or other artificial manures, to make them ready for the supreme effort when required; the chemical manures should be applied during the spring and summer, when the plants were making growth. Perfect drainage and liberal manuring were necessary to success. For beds to be drawn on for forcing roots, a liberal coating of stable manure in autumn was necessary. Seakale, Rhubarb, Dwarf Beans, Mushrooms, &c., were also dealt with in a practical and exhaustive manner; and the very interesting discussion which followed amongst the members, of which there was an unusually large number present, proved the interest taken in the subject.

BRISTOL & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

FEBRUARY 26.—This Association met at St. John's Rooms, Redland, on the above date, Mr. E. Poole in the chair, to hear Mr. W. STADDON, of Weston-super-Mare, read a paper on "Annuals, and their Employment in Gardens." His visit was the means of bringing together a good attendance.

THE SYDENHAM AND DISTRICT GARDENERS' GUILD.

FEBRUARY 27.—The opening meeting was held on the above date in the Wells Road Parish Hall; Canon Moberly, President, in the Chair. After a short speech by the President, Mr. BAND gave an interesting exhibition of lantern views from photographs taken by himself. The first part of the exhibition consisted of floral studies of flowers as growing, and as cut for decorative purposes. The next series of pictures shown upon the screen represented plants and features of interest in the Royal Garden, Kew; and the third series showed places and incidents of interest observed by the lecturer on his journey from Victoria to the Paris Exhibition of 1900. The Hon. Secretary of the Society is Mr. W. H. Brown, 2, Prospect Road, Sydenham.

LINNEAN.

February 19.—Professor S. H. Vines, F.R.S., President, in the Chair.

Mr. John Clayton, of Bradford, presented a set of thirty-two photographs to illustrate the celebrated Cowthorpe Oak, near Wetherby, Yorkshire. From the time of John Evelyn, this Oak has been described, measured, and its age guessed at. Mr. Clayton, in a printed summary of 22 pages, gives an account of the various observers who have mentioned the Oak in question, and many of the photographs are designed for comparison with other remarkable trees, amongst them the Crowhurst Yew in Sussex, the great Chestnut at Tortworth, and the Greendale Oak in Welbeck Park. In 1893, careful measurements and photographs were made of the tree, on four different visits in January, April, June, and October. The author's deductions from these data are, that the age of the tree has been greatly over-estimated; his own belief being that 500 years is the extreme limit of its age, from sapling to its present decrepitude and decay.

Dr. George Henderson, F.L.S., offered "Some Remarks on the possible uses of Essential Oils in the Economy of Plant-life." Adverting to the well-known fact that moisture in the air prevents radiation and consequent loss of heat, he suggested that emanations of essential oil from plants might possibly prevent damage by night frost during the period of flowering, basing his suggestion on Prof. Tyndall's researches thirty-two years since, on the presence of infinitesimal quantities of essential oil in the air. Tyndall found such presence increased the absorptive power of the air as regards heat-rays: taking dry air as 1, air-saturated with moisture as 72, then traces of essential oil rank as follows:—Rosemary 74, Cassia 109, Spikenard 355, and Aniseed 372. Dr. Henderson brought these remarks before the meeting as an interesting question for botanic investigation, since essential oils are usually regarded as mere waste products.

The Rev. T. R. R. Stebbing, V.P., having taken the chair, the first paper was summarised by the President for the author, "On the Electric Pulsation accompanying automatic Movements in Desmodium gyrans," by Prof. J. C. Bose, C.I.E., M.A., D.Sc. In communicating this paper, the President pointed out that it had long been known that stimulation of the irritable tissues of animals causes a change in their electrical state. When, for instance, a nerve is stimulated, an electrical current, known as the "current of action," is produced, travelling in the tissue from the relatively more excited to the relatively less excited portion. A good many years ago it was ascertained that a similar electrical disturbance is caused by stimulation of parts of plants known to be irritable, inasmuch as they respond to a stimulus by a movement. This was demonstrated by Sir John Burdon Sanderson in the case of Dionæa, and by Prof. Kunkel in the case of the Sensitive Plant (Mimosa pudica). It might be inferred from this that only those parts of the plant are electrically affected by stimulation which are capable of responding to a stimulus by a movement. As long ago as 1886 the President had pointed out that such an inference was not warranted, a criticism that has been justified by subsequent research. In fact, Prof. Bose demonstrated to the Society, just a year ago, that any living part of a plant, when stimulated mechanically, gives an electric response.

On the present occasion Prof. Bose has broken new ground. In the paper before the Society he gives the results of his investigation of the question as to whether or not spontaneous movements are accompanied by an electric disturbance comparable to that resulting from external stimulation. Spontaneous movements are not uncommon in the higher plants, but for various reasons there are but few instances suitable for an investigation of this kind. The most striking case is that of Desmodium gyrans, the Telegraph-plant. The leaf of this plant is trifoliolate, consisting of two small lateral leaflets, and a larger terminal leaflet. The lateral leaflets move up and down, like the arms of a semaphore—whence the popular name of the plant, the period of a complete up-and-down movement, in the plants observed, being about 3½ minutes. Having placed one electrode on the petiolule of a leaflet, and the other on the petiole of the leaf, both in connection with a galvanometer, Prof. Bose found that the spontaneous movement is associated with an electrical disturbance of a peculiar kind. There is first a large principal wave of disturbance, followed by a smaller subsidiary wave; the period of the former being about 1 minute, that of the latter about 2½ minutes. This disturbance is the expression of a "current of action" travelling in the plant from the excitable petiolule to the resting petiole.

The relation of the double wave of electrical disturbance to the movements of the leaflet was found to be this:—The principal wave attains its height during the downward movement of the leaflet; the leaflet rests for a brief space at its lowest position, during which time electrical recovery takes place. The leaflet now moves upwards, and then the second or subsidiary wave of electrical disturbance is produced. This relation is established by simultaneous records of the movements and of the electrical disturbances, which further show that the greater amplitude of the principal wave of electrical disturbance is the concomitant of the greater velocity of the downward, as compared with the upward, movement of the leaflet.

Some interesting observations are given upon the recurrence of periodic fatigue in the leaflets, followed by a restoration of activity; as also upon interference effects resulting from placing the two electrodes upon the petiolules of the two leaflets in different phases of movement.

The second paper was by Miss A. L. Embleton, B.Sc., communicated by Prof. G. B. Howes, Sec. L.S., and read by Mr. A. D. Michael for the author, on "Cerataphis Lataniæ, a peculiar Aphid." This insect was observed in 1901 on various Orchids in the Cambridge University Botanic Garden. The first description was by Boisduval in 1867, who considered it a Coccus; and the following year Signoret referred it to a new genus near Aleurodes, styling it Beisduvalia Lataniæ. In 1879 J. O. Westwood described a similar insect as Astero-lecanium orchidearum (fig. 66), "a new species of scale-insect," occurring on Cypripedium, and sparingly on Sobralia, Cattleya, and Dendrobium. [See *Gard. Chron.*, Dec. 20, 1879, p. 796.] On comparison, this proved to be identical with the species under review, which in 1882 received the name Cerataphis Lataniæ from Lichtenstein. The author gives the detailed synonymy of the creature, which is well known to cultivators on the Continent, and proceeds to set out its life history; in this country it exists in only one form, reproduced parthenogenetically, corresponding to an aleurodiform stage of a migratory aphis. The author concludes by suggesting that it is one of the migratory aphides, which has been deprived of its usual series of metamorphoses owing to an artificial mode of life.

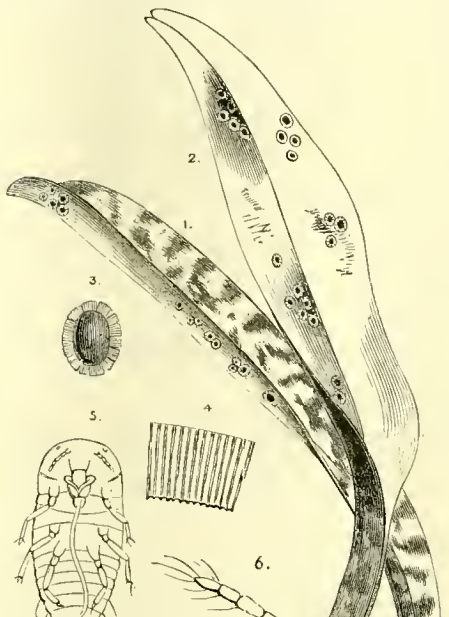

Fig. 66.—Fringed scale insect (Astero-lecanium).

1 and 2, Insects of natural size; 3, Enlarged insect; 4, Small portion of marginal scales; 5, Under-side of a young specimen; 6, Short antennæ, much magnified.

Mr. G. S. Saunders remarked that many years before he had observed the winged female, but, not then being aware of its peculiar position, he had not taken special notes of its life-history.

The last paper was by Mr. E. S. Salmon, F.L.S., "On Specialisation of Parasitism in the Erysiphaceæ." The author began by explaining the term "biologic form," or "species," by instancing two fungi which were not distinguishable morphologically, acting in diverse fashion on the same host-plants. This phenomenon has been known in the Uredineæ for some time, but its discovery in the Erysiphaceæ was more recent. Thirteen species of Bromus proved to be completely immune against the four forms of the fungus used, thus indicating the existence of four, or probably five, biologic forms.

The author also pursued his researches on the forms of Erysiphe graminis on Wheat and on Oats; the result showing that the Wheat-form cannot touch Barley, Rye, or Oats, nor Agropyrum repens, but it infected Triticum Spelta. The Oat-form cannot infect Wheat, Barley, or Rye, but it can attack other species of Avena.

Finally, experiments were made on Erysiphe Polygoni from Trifolium pratense, which proved unable to infect seven other species of Trifolium, but it always succeeded on its own host plant. Species of other Leguminosæ, Lotus corniculatus, Medicago sativa, Melilotus arvensis, Lupinus luteus, and Pinum sativum were also immune.

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

At a recent meeting of this Association, Mr. W. Townsend, gr., Sandhurst Lodge, gave a paper entitled "A Berkshire Garden in Summer," illustrated with limelight views. Of course, the garden dealt with was that under Mr. Townsend's charge, and which is noted for the beautiful outdoor flowers grown therein.

Mr. J. Gibson, gr., Danesfield, Marlow, made a splendid exhibit of the Sutton Variegated Kale, staging about three dozen heads, each showing two or more distinct colours of every conceivable shade of colour.

LEE, BLACKHEATH, LEWISHAM, & WEST KENT HORTICULTURAL.

February 27.—On the occasion of the meeting of the above, at the Old Institute, Old Road, Mr. Bastin gave an instructive lecture on the cultivation and diseases, &c., of the Caladium. There was also exhibited an excellent display of Apples, showing good keeping qualities, by Mr. Johnson, gr., Kemnel Manor, Chislehurst; a plant of Dendrobium Wardianum, beautifully flowered, shown by Mr. Judge, gr., Beechdale, Eltham Road; and Primula sinensis, by Mr. London, gr., Blackheath Park, showing good blooms. *H. J. H.*

NATIONAL CHRYSANTHEMUM.

March 2.—A meeting of the Executive Committee took place on the above date. A letter was read from the President, Mr. C. E. Shea, thanking the Committee for the honour they had done him in electing him President, and expressing his desire to give a President's Special First Prize at the exhibition to be held in November next. The Secretary reported he has seen Mr. Shea in reference to the matter, and it had been arranged that, if found agreeable to the Committee, the President would give the sum of £5 5s. as the President's Special First Prize in the class for twenty-four Japanese blooms. Mr. Shea's offer was accepted with thanks.

A letter was read from Mr. Stanton, steward, Park Place, Henley-on-Thames, stating that he believed, were Mrs. Noble's permission asked for, she would be willing for the Society to hold its annual outing at Park Place on July 13 next. It was agreed to take launches at Reading and go down the river to Park Place, dine at midday, and have a river trip in the afternoon, the arrangements being left in the hands of the Secretary. It was reported that no agreement with the Crystal Palace Company had yet come to hand and the Secretary was instructed to go down to the Palace, and press for the completion of the agreement, so that the arrangements for the year might be definitely settled. Acting upon a motion passed at the last meeting of the committee, the Secretary brought up an estimate of receipts and expenditure for the present year, so that the committee might be in possession of knowledge of the financial position of the Society before passing the schedules of prizes.

From this estimate it appeared that with the balance in hand at the commencement of the year, and the £200 offered by the Crystal Palace Co., an income of some £800 might be anticipated; and with the sum of £121, offered as prize money at the three shows, the expenditure was estimated at £780. The Secretary pointed out that some expected sources of income were problematical, but he thought it, on the whole, a fair estimate. After some discussion, the statement was accepted.

A report was made as to a somewhat serious decline in membership, and to the fact that several of the affiliated societies were in a state of financial collapse, and urged the importance of efforts being made to secure an accession of membership. A report was then brought up upon the Schedules of Prizes, showing that while the number of classes at each exhibition had been very sparingly produced, there had been a slight reduction of the prizes in most of them; also that the institution of grades of entrance fees had made an entire re-arrangement of the schedules of prizes, which the secretary set forth in detail—these were passed, together with some alterations in the general and special regulations affecting exhibiters.

The following persons were elected as judges for the various exhibitions: October show, Messrs. M. Gleeson, Stanmore, and A. Jeffries, Harlow. November show, Messrs. J. F. McLeod, Rochampton; A. Turner, Slough; C. J. Salter, Reigate; J. Fulford, Maidenhead; G. Inglefield, Tidworth; W. Robinson, Westbury; J. Jennings, Ascot; O. Thomas, Ealing; J. Smith, Mentmore; and W. Allan, Gunton Park Gardens. December show, Messrs. C. Orchard, Bembridge, and W. Ring, Waltham. The votes were taken by ballot.

Obituary.

F. W. BURT.—We are informed of the death recently of Mr. F. W. Burt, head gardener to Francis Reckitt, Esq., at Caen Wood Towers, Highgate, Middlesex.

Answers to Correspondents.

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

A PIG-STYE THAT IS A NUISANCE: *G. A.* If the owner of the stye will not remove it to a greater distance from your cottage, on your requesting him to do so, you should invoke the aid of the local authorities, who may have a bye-law that touches such cases.

BEGONIA GLOIRE DE LORRAINE SEEDING: *H. K.* This plant has formed fruits apparently fully developed, but we know of no authenticated case of seedlings having been raised. If you are successful in crossing with Sutton's Fairy Queen, kindly make the fact known.

CARNATION: *G. R., Wilts.* We cannot undertake to name florist's flowers. Send them to a specialist.

CEDAR OF LEBANON: *A. G.* The cones do not come to maturity till the end of the second year. There is no necessity to split them open to obtain the seed, as the scales open of themselves if laid out thinly in the sun and they are protected from rain. The seeds should be stuck into the soil in the seed-pot to half their depth, point downwards, and covered with a layer of moss, or lightly with soil, as described in our reply to a correspondent in last week's issue; and when they are pushed out of the soil by the downward thrust of the root, they may be raised out of the soil very carefully with the blade of a knife, and pricked out in thumb-pots.

CORRECTION: Manchester and North of England Orchid Society. Award of Merit (see *Gardeners' Chronicle* for February 28), Cypripedium Eurydice Robson's var., shown by Mr. J. Robson, should have read Lowe's var.

CUCUMBER PLANT: *Perplexed.* The disease is that caused by the fungus Cercospora melonis, first described in *Gardeners' Chronicle*, Sept. 5, 1896, p. 271; see also *Gardeners' Chronicle*, October 4, 1902, and frequent references in this column.

DAISIES AND DANDELIONS: *W. R.* Let the larger plants be spudded out of the soil, and apply Lawn Sand, which will cause a dense growth of grass, and smother the weeds. The Daisy-rake might be passed over the lawn at short intervals, which will greatly reduce the amount of seeds shed, sweeping up the heads and destroying them.

GARDEN DIRECTORIES: *H. W. D. J.* There are two, both of which are revised and brought up-to-date annually, viz., *The Horticultural Directory and Year Book*, published at the office, 12, Mitre Court Chambers, Fleet Street, E.C.; and the *Garden Annual Almanac and Address Book*, published at the office of *Gardening*, 17, Furnival Street, Holborn, E.C. Price of each, 1s.

LAUREL LEAVES INJURED: *Turnslo.* There is no disease present in the specimen, but the injury is due, we think, to noxious fumes.

LEAVES OF THE PINK DYING OFF: *W. Gasper.* The densely-tufted leaves and other characters strongly suggest eelworms; but this cannot be definitely ascertained unless roots are sent for examination.

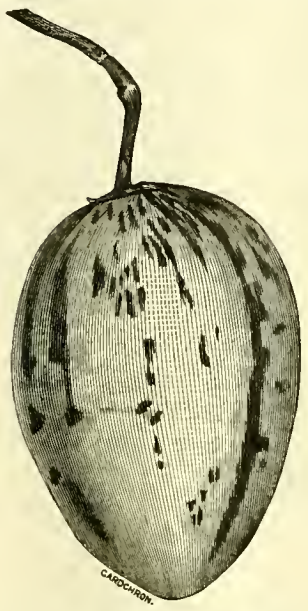

FIG. 67.—FRUIT OF THE MELON-PEAR: SOLANUM (MURICATUM) GUATEMALENSE. *Reduced.*

LIMING APPLE-TREES: *Broadhead.* The caustic soda-wash is effective as against lichens and moss, and brine would have the same effect; but it is now too late to use either. Mix fresh soot with the lime, and thus lessen the conspicuous whiteness.

"MAGGOTS" ON INDOOR PEACH-TREES: *G. A.* Before we can advise you on the mode of destruction, you must send specimens of the creatures, shoots, leaves, and fruit, all carefully packed, to this office.

MELON-PEAR: *C. W. D.* The fruit sent is that of Solanum muricatum (Guatemalense), see fig. 67, and known popularly as the Melon-Pear, because it has nothing whatever to do with either of those fruits. The plant forms an erect sub-shrub, and is a native of tropical America. The fruits are sometimes seen in English markets, are as large as a good-sized hen's-egg, aromatic and juicy.

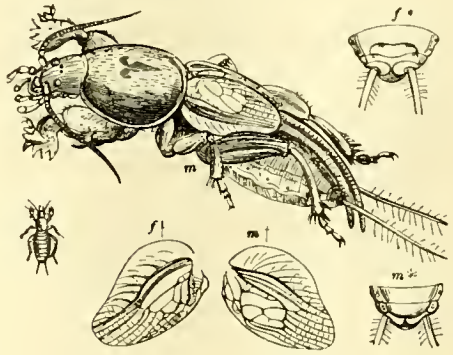

FIG. 68.—THE MOLE CRICKET.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—W. C., Kylemore.* 1, Pinus, perhaps muricata, but without the cones we cannot tell; 2, Pinus contorta; 6, Cupressus Corneyana.—*M. P. E.* 6, Cupressus, perhaps C. torulosa, but without cones it is difficult to say.—*Mrs. E. N.* No. 4, Davallia ornata. Please, when possible, send fertile and barren fronds of Ferns for naming. The barren frond only, as in this case, is not sufficient.—*Mrs. Janet R.* A Pleurothallis, but which species we cannot say from the specimen sent.—*J. M., Aberdeen.* A very fine variety of Dendrobium nobile.—*J. O., Berks.* Maxillaria picta.—*C. E.* 1, Cypripedium × Harrisianum; 2, C. × Godseffianum; 3, C. × politum.—*No name.* The yellow Dendrobium is D. fimbriatum.—*Zola.* 1, Calanthe nivalis; 2, C. Regnieri; 3, Dendrobium primulinum; 4, D. Jenkinsii.—*A. J. B.* 1, Cypripedium × Barteti; 2, C. × Hera.—*P. Wolter.* Cypripedium × Ashburtoniæ Barteti, as figured in *Iconographique des Orchidées*; Hippeastrum aulicum stenopetalum.—*H. F., Cosham.* Begonia coriacea.—*T. G.* One of the many forms of Cupressus Lawsoniana.—*J. H.* Pinus pinea, the Stone Pine, the seeds of which are eaten.—*A Reader.* A variety of Buxus sempervirens.—*N. W. O.* 1, next week; 2, Anemone Hepatica.

PEACH FOLIAGE DEFORMED: *G. R., Wilts.* The crinkling of the leaves is caused by greenfly, which puncture the skin. Fumigate on one or two quiet nights, then apply clean water with the garden-engine or syringe. Avoid cold draughts in the Peach-house.

POTATO: *R. B. Laird.*—The tuber is attacked with Fusarium Solani, which appears to be a deadly foe to stored Potatos. See *Journ. Roy. Hort. Soc.*, vol. xxvii., part 1, Sept., 1902; *Proceedings*, p. liv.; Scientific Committee, May 20, 1902.

PRIMROSE: *Rosavenu.* A leafy condition of the calyx is by no means uncommon. Illustrations have been frequently given in our columns. The plant is undoubtedly worth preserving, although it is by no means a new departure.

THE GARDENER DURING ILLNESS: *Ess*, and *Enquirer, Kingsheath.* The gardener being in law a domestic servant, cannot be discharged for absence from his employment during illness, unless the illness be much protracted, nor could his wages be legally stopped. The gardener, in default of a written agreement, is bound to give a month's notice, as also the employer. It does make a difference if the gardener reside off the premises, seeing that he cannot claim a sum of money in lieu of house accommodation, coal, and other perquisites.

THE MOLE-CRICKET (see fig. 68): *G. P.* If you have access to our volume for 1849, you will find a very interesting account of this insect, which is very destructive to roots, but is much less common here than on the continent.

THRIPS ON FERNS: *W. G.* As you have given the newer remedies a trial, and have not destroyed the pests, why not go back to earlier remedies, such as mild fumigation with Tobacco on alternate nights for a week; or employ a weak solution of Tobacco-water only—do not use Tobacco-paper or rag! We used to annihilate our insect foes with these simple means years ago.

VICTORIA PLUM SHOOTS DISEASED: *W. H.* Frost has produced the cracks, and then come fungus-spores, which find in them a fitting place to vegetate, feed on the bark, and ultimately destroy the wood.

VIOLET-ROOTS DISEASED: *W. Gasper.* See answer under "Violet-roots Dying Off," in *Gardeners' Chronicle*, February 28, 1903.

YEW: *Ascot.* The Dovaston Yew.

COMMUNICATIONS RECEIVED.—J. Donnell Smith, Baltimore—D. O—Dr. Henry, Nancy—C. E. S.—Menabilly—G. S. S.—F. de Laet, Contich.—L. E. I.—F. Smith—W. A. C.—H. & J. E.—W. R. F.—F. W. B.—H. A. S.—Rev. D. R. W.—G. G. B.—F. N. W.—A. B. R.—W. J. M.—C. Sprenger, Naples—J. Godseff.—A W.—P. T. More.—S. A.—Cassell & Co.—W. J. May (under consideration.)—A. S. G.—Wild Rose.—D. R. D.—W. A. C.—S. W. F.—G. W.—W. C. R.—S. Kerry—W. Fulford—J. J. W., Cannes—Young Gardener—H. W. W.—C. W. D.—H. & Son—N. W. O.

(*For Markets and Weather, see p xiv.*)

View of the Statuary Garden in the grounds, Belvoir Castle, Grantham.

THE
Gardeners' Chronicle

No. 846.—SATURDAY, MARCH 14, 1903.

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THE NEIGHBOURHOOD OF OPORTO.

THE coast line running both north and south of Oporto (or Porto, as the natives call it) for some distance, consists chiefly of rocky sea-shores and sand dunes, merging gradually into heaths, and these again in turn giving way to Pine forests of somewhat stunted growth. Among the forested country and heaths, there is a good deal of cultivation which is continued up to the serras or rocky hills of the "back" country.

Deciduous trees are comparatively scarce in the close vicinity of the coast, though a little further inland there are many Oaks. Near small rivers there are grassy dells and glades, and often very marshy places bordering the streams. The contour of the land around Porto is undulating, but here and there occur low rocky hills of a more abrupt character, sprinkled with granite boulders, or dotted with a dry heath and bush-like vegetation. There are more or less six floral areas in the Porto district, though many of the plants of course are not confined entirely to their own area, overlap into the others.

1. Sea-coast and sand dunes.
2. The heaths or "Tojoes."
3. Cultivated fields and roadsides.
4. The Pine woods or "Pinhaes."
5. Grassy margins of rivers where there are deciduous trees and brushwood.
6. Exposed rocky hills.

Sea-coast and sand dunes. — The underlying rock near Porto is all granite, and this along the coast is often piled up into jumbled masses of boulders, in the crevices of which Asplenium marinum grows abundantly; while trailing on the sand, in company generally with Silene littorea, is the white downy-foliaged Medicago marina, which is very common. On the sands near Mattosinhos, a suburb of Porto, are groups of Pancratium maritimum. These have often been transplanted into gardens in Porto, but do not seem to do well away from their native haunt of pure sand.

On the sandy wastes, and near the three-cornered Martello forts with their pepper-pot turrets, which line the coast at intervals, quantities of Mesembryanthemum have been naturalised, both the rose coloured and yellow kinds, forming large patches where they occur. Paronychia argentea is frequent on the coast, its prostrate habit and close white membranous flowers being a noticeable feature on the sand. Ophioglossum lusitanicum grows usually in damp spots, just where a rock crops out, and is hardly ever found in any other situation; it can scarcely be said to grow in the sand dune area, perhaps, though very close to it. Other dune plants which are noticeable in April, are the beautiful blue Anagallis linifolia, with its feathery red stamens; Malcolmia littorea, with whitish or glaucous foliage; and the pretty Eudiantha lactea.

The Heaths or "Tojoes." — On sandy soil and always in close proximity to the sea, yet not actually on the dunes, grows Trichonema Clusianum. It grows very thickly in certain spots, covering large areas, very often right in the middle of the narrow foot-paths along the shore line. Gorse is very common. Cistus salviæfolius with white flowers, is the usual Cistus met with. Among other heath plants are Genista anglica, Silene gallica, the brilliant blue Lithospermum prostratum, which is very abundant, with its masses of flowers and compact, almost bushy growth; and Æthiorrhiza bulbosa, with its curious pale yellow tubers like miniature new Potatos.

Cultivated Fields and Roadsides.—There is a great deal of cultivation interspersed among the heaths of the Porto district. The fields are usually fenced in by banks of earth and stones, which are covered and grown over with Gorse, and often form sheets of purple, amethyst, and gold, with Echium plantagineum and Chrysanthemum myconis. Oxalis purpurea, which was introduced from South America, has completely naturalised itself, and is frequent; it is a brilliant rose colour, and very pretty. In damp spots Ranunculus ophioglossifolius, and on the hedge-banks a little white but scentless Mignonette, Astrocarpus Clusii; and Arenaria montana are found. Vicia sativa is abundant, and Cotula coronopifolia on wet ground; Anchusa sempervirens is common.

Pine-forests and Woods.—Among the Pine-woods, which consist principally of Pinus Pinea and P. Pinaster, the rust-coloured, powdery male cones of which form a very striking feature at this time of year, certain open spots are carpeted with the cream-coloured Narcissus triandrus. The greater part of the undergrowth of Gorse and undershrub is usually systematically shaved off by the peasants, so that the woods often present a bare appearance. The fine blue Omphalodes lusitanica is common, also locally, Simethis bicolor. In sheltered, shady places, Aristolochia longa, Asphodelus cerasiferus, Osyris alba, Polygonatum officinale, and Digitalis purpurea; also Aquilegia Dicksoni in more open, grassy situations; and in wet ground Serapias cordigera, an Orchid worth cultivating in a bog-garden.

Margins of Rivers.—Here, abundant though rather local, are found colonies of the rich yellow "Hoop-petticoat" Narcissus (N. bulbocodium), Saxifraga granulata, Ornithogalum umbellatum, Cardamine pratensis, Doronicum plantagineum, I have only seen on the banks of the Douro river on steep, grassy banks, where also, but in more rocky situations, grow Saxifraga umbrosa, Arnica montana; in glens and dells grows Osmunda regalis, which however had scarcely unfolded its fronds at this time of year.

Exposed rocky surfaces and hills.—In these places a good deal of Genista is found; Genista anglica (mentioned above), G. triacantha, G. berberidea, and Cytisus albus, a very graceful bloom. Near Vallona we found a quantity of the handsome dark blue Polygala microphylla, and the curious Drosophyllum lusitanicum, with its long narrow leaves covered with sticky glands. It has a very xerophytic appearance, and is associated with Erica umbellata. These dry, rocky hills are rather barren of species, but what there are, are usually of interest.

There are many lanes in and around the city where certain plants are very common, i.e., Cotyledon umbilicus; and among Ferns, Cystopteris fragilis, and Gymnogramma leptophylla. Also a new Holland Daisy, Vittadenia triloba, a weed which has completely established itself in the city; and another somewhat curious weed, Soliva Barclayana, which appears to have been introduced from South America.

The above mentioned plants are only a few of the more conspicuous species occurring in and around Porto in the month of April in the various floral areas. Earlier in the year, a greater proportion of bulbous things are out; while later in May and the beginning of June, the sand spits which occur here and there on the banks of the river Douro, are carpeted with many orders of polypetalous flowers. *C. Orfeur.*

NEW OR NOTEWORTHY PLANTS.

LYCHNIS YUNNANENSIS, *Baker fil., sp. nov.**

This new species of Lychnis has much the habit of L. sibirica, Linn.; the petals are white, and considerably longer than the calyx, and generally

Lychnis yunnanensis, Baker fil.—Radix perennis, multicaulis; caules erecti vel adscendentes teretes graciles pubescentes, 10–16 cm. longi; folia lanceolata vel lineari-lanceolata, sessilia, opposita, virentia, pubescentia, apice acuta, 2·0–2·8 cm. longa, 2·0–6·0 mm. lata; pedunculi axillares solitarii vel terminales, 2–3 cymosi; florea erecti vel suberecti; calyx 10-nervius, 7–8 mm. longus, tubuloso-campanulatus, ad margines rubro tinctus nervis viridibus dentibus ± 2 mm. longis, ovatis, acutis, tenuiter glandulosis; petala in sicco alba plus minus bifida calycem superantia ± 1·3 cm. longa, unguibus glabris filamentis gracilibus calycem longioribus; styli 5, subanthesi 2 mm. longi, graciles; ovarium oblongum, gynophorum longior subanthesi 2 mm. longum. *E. G. Baker.*

bi-lobed. It was received by Herr Max Leichtlin from Yunnan, who has sent specimens to the National Herbarium at South Kensington.

Root perennial, multicaulescent; stems in specimen examined eleven from one rootstock (varying doubtless in other specimens), erect, terete, pubescent, slender, 10 to 16 cm. long. Leaves lanceolate or linear-lanceolate, sessile, opposite, tapering to an acute apex, glaucous-green, pubescent, 2·0 to 2·8 cm. long, 2·0 mm. to 6·0 mm. broad at the broadest point, which is sometimes near the base, or occasionally nearer the middle of the leaf. Calyx ten-nerved, tubular-campanulate, 7 to 8 mm. long, reddish at the margin, veins green, segments ovate, acute, somewhat glandular. Petals in a dried state, white, generally bi-lobed, lobes rounded, considerably longer than the calyx. Filaments slender, longer than the calyx. Ovary oblong, longer than the gynophore, when the plant is in flower 2 mm. long. Styles five, slender, 2 mm. long.

Dr. F. N. Williams, who kindly undertook to examine the specimens, tells me he considers it a near ally of Lychnis Flos-cuculi, Linn., and he would place it in the genus Coronaria. *E. G. Baker.*

UGANDA.

WE take the following extracts from an official report of Mr. J. Mahon, relating to the plantations made in the Botanic Gardens at Entebbe :—

"While some plants make only moderate progress in this country, which in other parts of the tropics are known to grow very rapidly, still, it may be said that on the whole, the things mentioned in the lists thrive most satisfactorily, and are eminently suited to the climate for either useful or ornamental purposes. .

RUBBER TREES.

It is well known there are large areas in Uganda containing abundance of rubber-vine (Landolphia) yielding excellent rubber, but as it is practically impossible to systematically cultivate this plant, we are introducing all the celebrated rubber-yielding trees with the object of demonstrating that this country offers a field for establishing rubber-plantations on a commercial basis. As I have pointed out before, timely preparations require to be made to furnish supplies for the demands of the future.

The standard by which all rubber is judged is the Pará (Hevea brasiliensis). When I came to Uganda in 1901, the Director of the Royal Botanic Gardens, Kew, forwarded in my charge a consignment of plants, amongst which were several sorts of Pará-rubber seedlings, with stems about as thick as a lead pencil, and 9 to 12 inches high. One of these, in the Botanic Gardens, is now over 7 feet high, and otherwise of proportionate growth. As I reached Entebbe, during one of the worst droughts remembered here, the young plants, after a trying journey of almost two months, had a hard battle to exist, and some of them succumbed, so that the success of the survivals is all the more satisfactory to record. But as this Amazonian plant affects low levels, it remains to be seen whether our climate and elevation will suit it. I am certain the lake will exercise a very favourable influence, and it would, in my opinion, be a mistake to experiment with these and other extra-tropical plants elsewhere in Uganda than on the lake shores.

Castilloa elastica, Central American rubber, was another item in the Kew consignment. This also has done very well, and being more or less of a highland plant in its native country, it is reasonable to assume the conditions here will prove suitable. A considerable quantity of Castilloa plants have been ordered, and an experiment in introducing its seeds here direct from Mexico is being conducted.

Ceara rubber (Manihot Glaziovii) is growing with its accustomed vigour. A seedling of eight months is nearly 4 feet high. It seems quite at home in Central African climates, but it is not a first-class rubber, and instances are on record where it was proved not worth the trouble of planting; still, it might be a most suitable sort here.

A serious loss occurred last June in the burning down of a large nursery-shed through native carelessness, when a fine batch of the celebrated silk rubber of Lagos (Funtumia elastica) was lost, in company with other valuable things. I feel certain Lagos silk rubber will prove a suitable culture here for plantations in the lake region.

We have a large number of Landolphia seedlings, which were obtained from Sesse in 1900. Nothing is more puzzling than the slow rate at which this common native plant grows under cultivation. It is quite clear it requires to be sown where it is intended the plants are to remain. It resents transplanting, and some seedlings we put at the base of trees in a stretch of forest to grow *au naturel* have remained practically as they were put out six months ago.

CACAO.

The two cases of Cacao (Theobroma Cacao) sent out from Kew in August, 1901, have thriven exceptionally well. They arrived during the drought already referred to, and as there could be no thought of planting them out I had them all put in pots, and, to shade them, had recourse to converting my tent into a greenhouse, and it suited the purpose admirably. Whilst there they were attacked by rats, which gnawed the stems of many quite close to the soil. Trapping several frightened the others away eventually. It was not possible to plant out the Cacao till December, 1901. Their progress in nine months permanently planted out has been, and continues to be, most satisfactory. I am not aware of any country where Cacao is grown commercially at 4,000 ft. altitude. If we prove it can be done here, the experiment will be valuable.

COFFEE.

As an excellent Coffee is frequently found in this country in a wild state, it is perhaps only to be expected

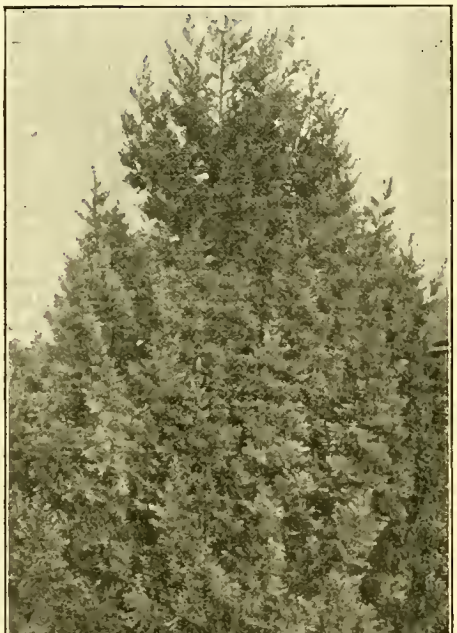


FIG. 69.—WIDDRINGTONIA WHYTEI
About three years old, growing in the Entebbe Botanic Gardens, Uganda.

that introduced sorts should do well. The London Market Report, recently to hand, on a sample of Nyasa plantation Coffee, grown and prepared here, proves that the country can produce Coffee of first-rate quality. Some of the books dealing with this country call the indigenous Coffee a form of Coffea arabica. It is nothing of the kind. It is probably a distinct species, and certainly allied to the well-marked large-leaved West Coast types. It responds most readily to cultivation, and grows rapidly after the seedling stage is passed. A Congo species (Coffea robusta) bears a striking similarity to it. This latter grows splendidly here. Our plants are from seedlings given by Kew. One plant has just flowered. I believe Coffea robusta has a considerable market in parts of Europe.

Maragogipe Coffee, a South American hybrid, and a splendid cropper, is growing freely. I have a number of seedlings of Sierra Leone highland Coffee (Coffea stenophylla), raised from Singapore seed.

TEA

grows with but moderate rapidity just here. Our rainfall is not great enough. When we have a period of rains it flourishes nicely. If its cultivation were carried on here even on a moderate scale to meet some of the local demands, it would be necessary, I feel certain, to call in the aid of irrigation. Mr. Scott Elliot, the naturalist and traveller, seemed satisfied from his explorations in the Ruwenzori country that large areas there offered a fine field for cultivating Tea on a large scale.

Vanilla is growing moderately well. Our forest belt on the lake shore suggests a climate where it ought to thrive apace, but doubtless our elevation accounts to a great extent for its tardiness.

The fruits mentioned in the accompanying lists are practically all well-known tropical sorts. We are pushing on their culture as fast as possible, for fruit is one of our scarcest commodities. Our plants are doing excellently, but the majority are not old enough to have reached the fruiting age yet. A number of Pine apple suckers I brought from Kew are now bearing their first crop of fruits; they are choice dessert sorts grown in British gardens. Already a quantity of shoots from these have been distributed to local residents and to some out-stations. This distribution will continue to be carried out whenever opportunities occur.

TIMBER TREES.

A great deal of attention is given to the introduction of timber trees. The fine Mlanji Cedar of Nyasaland makes most satisfactory progress here. Specimens about three years old are now over 15 feet high. A large quantity of seeds of this tree was recently obtained from the Botanical and Forestry Department, Zomba, and distributed widely in Uganda. There is a considerable number of trees planted in the gardens here and about the station. Establishing the useful and ornamental Eucalypti is practically impossible, owing to the depredations of 'white ants' (termites). One avenue alone has been planted no fewer than four times by myself. Fine young trees from 15 to 20 feet high are ringbarked in a short time just below the surface and quickly die. A wide selection of species have been tried, but all seem equally vulnerable to the attacks of this insidious pest. We have tried all methods of fighting it, but with little or no result. It is rather interesting to know that in one of the worst portions of the gardens for 'white ants' the common Guava thrives and is never attacked by the creatures.

West Indian Mahogany, various Coniferæ, Palms, and several timber trees of the Straits Settlements, &c., are amongst recent introductions. Mahogany will be extensively planted and distributed. A barrel of seeds (through Kew) from the Commissioner of Agriculture, Barbados, is due to arrive presently. Some seedlings of a few months old planted out lately are thriving well.

A large selection of species of Australian Acaciæ, useful and ornamental, in addition to other trees from that country, have recently been sown.

FIBRES.

There is already some local enterprise in the matter of exporting native fibres. Sanseviera (Bowstring Hemp) is abundant and there appear to be three or four species. A favourable report was received from London on specimens we sent, and one was valued at £25 per ton. Raphia fibre from the magnificent Palm so common on the lake-side is, like Sanseviera, extremely abundant. Both of these items could be propagated to any extent by planters here at a trifling cost. We have some common Ramie, or 'China grass,' growing very favourably. I consider that many parts of this country are peculiarly well suited to Ramie-growing. I am not aware if the difficulty of finding a really suitable and practicable machine to prepare this splendid fibre on the field has yet been overcome.

The indigenous cotton is a very fair sample, and imported sorts which we have experimented with on a small scale do very well; the fibre was favourably reported on in Manchester. The only drawback is a tendency on the part of some varieties of known perennial habit to become annual, dying off as soon as the crop is matured."

[The Mlanji Cedar, Widdringtonia Whytei, was first described by Dr. Rendle in the *Transactions of the Linnean Society*. Our illustration (fig. 69), which we owe to the courtesy of the director of the Royal Botanic Gardens, Kew, shows a young plant growing in the gardens at Entebbe. In our number for June 16, 1894, p. 746, we extracted from the *Kew Bulletin* of 1894, some interesting particulars relating to the tree. ED.]

SOWING SEEDS OF GRASSES.

THOSE about to lay down lawns of any kind with seeds, should dig or trench the land; and in the case of simple digging, remove all coarse-growing weeds, root and top, and by scuffling and raking reduce the surface to a fine tilth. If the land be very poor, manure in small quantity may be dug in, or some fine rich soil spread over it, made level, either hanging or dead level, and all inequalities taken out by raking or filling in with soil from the higher parts. Having done this, let it be trampled evenly and regularly all over, rake again, and finally pass a roller over several times. The ground being thus got into a nice condition, sow Ryegrass seed first in the desired quantity, also fine Clover-seed, and hack and rake these into the surface, following with the finer grass-seeds. Choose a windless day and

the surface dry for carrying out the work. It is a good plan to peg out the land to be sown in strips, and sow each separately. Scatter some small quantity of finely-sifted soil free from weed seeds over the surface. In order to finish off the work properly, pass the roller again over the sown land. If cats or seed-eating birds be feared, the land should be netted, or protected by black thread supported on thin sticks thrust into the soil. *W. A. Cook.*

PRUNUS SUBHIRTELLA.

This is one of the latest acquisitions to the flowering Cherries, having been introduced to Kew in 1895 from the Arnold Arboretum. It is a native of the mountains of Japan, and appears to be largely cultivated by the Japanese for its flowers. The native name is "Higansakura." In this country it promises to be a very ornamental tree. The original plant at Kew is now 12 feet to 14 feet high, of pyramidal outline, and has a distinct, well-formed trunk 2 or 3 inches in diameter. It is evidently a small or medium-sized tree when mature; the branches are rather erect-growing, and the leaves are 2 inches to 3 inches long, ovate, pointed, and toothed, each tooth terminated by a gland. The are dark, rather dull green above, paler beneath, and hairy on both surfaces, especially on the veins. The flowers are borne in clusters of

Fig. 70.—PRUNUS SUBHIRTELLA.

from two to five, each flower of about ¾ inch in diameter, of a soft rose tint when first expanded, and becoming paler with age. The illustration (fig. 70) will show how abundantly they are borne. In an average season the flowers are in full beauty about mid-April, but in very mild seasons as early as the end of March. A distinctive character is given to the flower by the petals being slightly lobed or notched at the tips.

The specimen from which the illustration was made was cut from a young tree forced into bloom in February in the greenhouse at Kew. For such a purpose the species is evidently well suited. It not only develops its flowers well, but they last in good condition for some weeks. The flowers, moreover, are not only very pretty, but also very distinct from the other Cherries commonly used for early forcing. In the open-air they are of a much more deeply-tinted rose; they do not, however, always escape the blighting frosts of spring. But seen at its best, Prunus subhirtella is one of the loveliest of April-flowering trees.

Among the other Cherries already established in our gardens, P. pendula—or what is more commonly known as Cerasus rosea pendula—is the nearest ally to P. subhirtella. It differs, of course, in its pendulous habit; also in its leaves being more lustrous and less hairy when mature than those of P. subhirtella. The flowers, however, except in having rather longer stalks, are almost identical—the fruit I have not seen.

The present species can be struck from cuttings put in about mid-June, or whenever the young shoots have become firm and half woody. A stock of young trees has been raised in this manner at Kew, and from their rapid free growth the method is evidently a suitable one. The species can, no doubt, be rapidly increased by budding also; but in the case of flowering Cherries there are objections to that method. *W. J. B.*

THE MARQUIS DE WAVRIN'S CATTLEYAS.

THE Château de Ronsele, the country seat of the Marquis de Wavrin, is situated near Ghent, Belgium; and here the Marquis has collected a choice lot of Orchids, including what is probably the finest selection of Cattleya Trianæ ever made. The famous "Lee" collection, which was sold by auction some years since, was particularly rich in varieties of this splendid winter-blooming Orchid, the stock of the noted variety C. T. Leeana realising 700 guineas. Both the collection and the sale are well within the memory of many orchidists, who will recollect the fine quality of the plants, and the excellence of the varieties. But good as the Lee collection was, it is surpassed by that of the Marquis de Wavrin, which may truly be said to be unique.

At the time of the writer's visit, there were some 200 distinct forms in bloom, and among them at least twenty white varieties, or with white predominating in the flowers, from the pure albino, C. T. alba, to a very lovely form designated Comtesse de Flandre, bearing fourteen large glistening white, blush-tinted blossoms.

My visit was too late by some weeks to witness the finest part of the display, as at the previous meeting of the Ghent Horticultural Society the Marquis staged a group of a startling character, which was unanimously accounted to be the best collection of C. Trianæ ever brought to the Society's exhibitions. It is surprising that such an immense number of distinct and good varieties could be found in any one species of Orchid, or in any one collection; but such is the enthusiasm of the owner, that every source of this species has been exhausted to furnish the Ronsele collection; while the Marquis's *chef de culture*, M. Gerard De Geest, cultivates these plants to perfection. One example may be cited, that of a pseudo-bulb matured this season which measures 6 inches in circumference, with leaves of proportionate size, and of that leather-like consistency so dear to the cultivator. The general condition of the plants is so good, that De Geest was asked what was the kind of compost in which the plants were cultivated; his reply was: "Polypodium fibre and sphagnum, with a surface layer of pure sphagnum." The results are certainly extraordinary, and decidedly the best I have ever observed, though I have studied the cultivation of Cattleya Trianæ from the time of the introduction of the plant into Europe.

I well remember the grand plants of Mr. Marshall, of Enfield, who made a specialty of Cattleya Trianæ from the first, and who gained the Royal Horticultural Society's Gold Medal for a splendid exhibit of varieties in 1865, staged in the Council Room, at South Kensington.

The following were among the best of the varieties of C. Trianæ in flower at the time of my visit to Ronsele. Prince Albert, a grandly shaped form, sepals and petals of a deep rose-red, the front area of the frilled labellum being of a rich crimson, rendered the more conspicuous by the deep golden-yellow shading of the throat. Comtesse de Flandres, already mentioned; Lady Tennant, of the plumose or Backhouseana section, the broad crimson flaked petals being particularly broad and good in shape and colour. The Marquis has at least a dozen forms in this group, all of which are distinct and good. These include a specimen of the original var. Backhouseana Regina, a pleasing form of a shape and colouring closely resembling Mendeli var. Fairy Queen, the sepals and petals being pure white, as is the greater portion of the lip, the exception being the central rose-coloured rayed blotch; the throat is of a soft yellow tint, much lighter than is usual.

"Perfect" is one of the red varieties, and well deserves its varietal designation; the petals measure 3½ inches across, and the flower is of admirable proportions, besides exhibiting a wonderful depth of colour, particularly the front portion of the lip, the velvet-like crimson tint of which is reminiscent of Cattleya Hardyana, though the throat is similar in colour to that of the variety Prince Albert.

Mademoiselle Adrienne de Wavrin ranks high among the white-flowered varieties; sepals and petals milk-white, broad and shapely, and the lip suffused with a tender shade of rose-lilac, with a pure white frilled margin; an effective feature of the flower. The variety "rubens," a gem among the darker varieties, finely formed and conspicuous, owing to the intense crimson-lake colouring of the lip; the sepals and petals are nearly as dark. "Le Czar" is remarkable for its ideal shape, sepals and petals snowy white, of great substance, and contrasting effectively with the broad-frilled magenta-crimson coloured lip. "Angelica," a lovely form, difficult to describe, the labellum exhibiting a most uncommon shade of colour, briefly defined as slaty-blue, but the term does not convey the beauty of the living tint; the sepals and petals are white with a slight rose tint, which adds to the general effect. "Bella" is a very large form, chiefly notable for its large size and perfect shape, the great breadth of the petals, and the rich crimson colour of the lip, which is bordered with French-grey. "Victoria" has light rose-coloured sepals and petals that are unusually broad, appearing lighter in tint than they are in reality, owing to the intense purple-crimson tint of the lip. "Transvaal" has equally large flowers, the sepals and petals of a deep rose-pink tint; the lip is of plum-purple, shaded with crimson, and the throat entirely of a clear orange-yellow colour. "President Oswald de Kerchove," named in compliment to the President of the Ghent Horticultural Society, is a particularly handsome flower—one of the finest in the collection, with sepals and petals of a clear rose-crimson tint, and a very broad lip of the deepest crimson-maroon. "Tessellata" is a finely-shaped form, remarkable in colour, the sepals and petals being dappled with rose and white, rendering still more vivid the bright crimson-lake colouring of the lip. "Illuminata," a very large and finely-shaped flower, having the whole front of the lip of a rich purple-crimson colour, and sepals and petals of a soft rose tint. "Marginata" is not perhaps so aptly distinguished by its name as many of the other forms; it is, however, a grand variety, and of a brilliant colour, with pearly-white sepals and petals, and lip of a rich crimson-red tint, and a frilled margin of white, that passes into orange-yellow in the throat.

"Faseinator," the last of which mention can be made here, but by no means the least attractive, has bright cherry-red sepals and petals; the front lobe of the lip is a deep maroon-crimson, abruptly terminating at the entrance of the throat, where it is met by a deep orange ochre shade of colour.

The foregoing varieties are representative of the many grand forms acquired by the Marquis, and of the general excellence of the collection; but the interest of the Marquis is not confined merely in varieties of Cattleya Trianæ, although they certainly form a grand feature of the Rousele collection. Excepting Odontoglossums and Cypripediums, all the most popular species of Orchids are represented here, especially the albinos of Lælia and Cattleya. In some cases, six or more examples of the same albino find a place in the collection, while a large number of beautiful hybrids have been raised or acquired. *J. G.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM BOXALLI.

BURMESE Dendrobes of the more showy species are imported largely by Messrs. Hugh Low & Co., Bush Hill Park, where there is now a good show of the finest of those that flower in the spring, amongst others D. Boxalli, which has always been a rather scarce plant. The stout upright pseudo-bulbs are thickly clad with showy white flowers, tipped with rose; the disc of the lip is of a deep yellow tint, and is edged with white, the apex being of a pink colour. In appearance it is intermediate between D. crystallinum and D. crassinode, and it is probably a natural hybrid, for it seems to have never been imported in quantity. It is closely allied to D. gratiosissimum (Bullerianum).

CATTLEYA TRIANÆI LEEANA.

A flower of this fine variety, sent by Mr. T. Stafford, gr. to F. Hardy, Esq., Tyntesfield, Ashton-on-Mersey, proves that its distinctive features of great size, breadth of petal, and finely expanded labellum, so often noted in the *Gardeners' Chronicle*, from the then famous Downside collection, are well sustained. Fashion in Orchids changes, and probably the high-priced favourites of that day would not realise the exceptional prices they then did, although they would always command high figures. In a note in the *Gardeners' Chronicle*, May 7, 1887, of a sale of Orchids at Downside, it is recorded that the 550 lots of the first day's sale brought £3,388, some of the Cattleya Trianæi varieties being among the favourites: "Cattleya Trianæi Leeana, with thirteen bulbs, £199 10s.; C. T. Osmani, £63 and £94 10s.; C. T. eboracensis, £42; C. T. Dayana, £56 14s.; C. T. Dodgsoni, £73 10s.; C. T. Emperor, £46 4s."

"FLORA BRASILIENSIS," FASCICULUS CXXVI., ORCHIDACEÆ VII., EXPOSUIT ALFREDUS COGNIAUX. PP. 381—642, TAB. 82—119.

In our issue of July 13, 1901, p. 26, we favourably commented on the part of vol. iii., in which

M. Alfred Cogniaux had so well continued his enumeration of the Orchidaceæ in this stupendous work on the flora of Brazil. In that fascicle the genus Epidendrum was continued, and Cattleya, Lælia, Leptotes, Brassavola, Schomburgkia, Sophronitis, and other genera elaborately dealt with.

The present fascicle is accompanied by a full index, and takes up the work of completing Govenia, and continues with Cyanæorchis, Mormodes, Catasetum, Cycnoches, Lycaste, Paphinia, Bifrenaria, Peristeria, Sievekingia, Lycomormium, Coryanthes, Paradisanthus, Aganisia, Acacallis, Stanhopea, Houlletia, Kegelia, Gongora, Cirrhæa, Koellensteinia, Colax, Zygopetalum, Menadenium, Eriopsis, and Bulbophyllum.

Of Catasetum, fifty-two Brazilian species are described, ten of them being illustrated; of Bulbophyllum, forty-two species are described, and over twenty of them are illustrated. The descriptions and illustrations of these two genera are specially interesting. The species of Catasetum, although not of much use to growers for florist's purposes, are always interesting, and their peculiar structure, and the production of male and female flowers, some of which are also illustrated, give additional interest to the genus.

The enumeration of so many species of Brazilian Bulbophyllums will surprise even the orchidists who collect botanical Orchids; for although the Indian, African, and Malayan Bulbophyllums frequently get imported, it is singular that the South American kinds rarely appear in gardens. Many of those illustrated, such as Bulbophyllum barbatum, B. laciniatum and its var. Janeirense, B. nemorosum, and B. plumosum, have hairy lipped, insect-like flowers, which would render them of equal interest with the singular African B. barbigerum, which never fails to attract attention when in bloom.

All the genera and species dealt with are most carefully and minutely described, and the same exactness extends to the analytical representation of the species illustrated.

As a purely scientific work devoted to a given area, it is difficult to conceive how the Orchid parts of the *Flora Brasiliensis* could be improved. Of course, M. Cogniaux has his own opinions about the classification of certain sections, but for any departures in that direction he has doubtless satisfied himself that the course pursued is correct. It will be useful to enumerate the illustrations in this part as we did in the preceding:—

Mormodes tigrinum, M. roseum, Lycomormium Serronianum, Catasetum Gnomus, male and female; C. rioularium, C. Hookeri var. lahiatum, C. cernuum var. umbrosum, C. Lemosii, C. ciliatum; C. albovirens, C. micranthum, C. discolor; Cycnoches Haagei, C. pentadactylon; Paphinia grandiflora, Batemania Colleyi, B. Yanaperyensis, Bifrenaria sabulosa, B. aurea, B. calcarata; Coryanthes maculata var. splendens, C. biflora; Paradisanthus paranænsis, P. Mosenii; Stanhopea oculata, Gongora nigrita, Cirrhæa saccata, C. Loddigesii; Koellensteinia tricolor, K. graminea; Zygopetalum Mackayi, Z. maxillare, Z. Sellowii, Z. triste, Z. Mosenianum, Z. microphytum, Z. rostratum (Menadenium labiosum); Bifrenaria vitellina, Eriopsis Sprucei, Bulbophyllum atropurpureum, B. micranthum, B. rupicolum, B. macroceras, B. mentosum, B. insectiferum, B. micropetalum, B. epiphytum, B. glutinosum, B. punctatum, B. barbatum, B. granulosum, B. monosepalum, B. laciniatum and var. Janeirense, B. nemorosum, B. ochraceum, B. quadricolor, B. plumosum, B. bidentatum, B. cantagallense, B. chlorepterum, and Stenia pallida.

Regular Peloria in Cattleya Trianæ.

Mr. Butcher, of the gardens, Heath Lodge, Hampstead, kindly forwards us a regular flower of Cattleya Trianæ in which there are three sepals, three petals all lip-like in colour and form, a straight column, with a terminal anther. The ovary is three-celled, but without ovules. It might be briefly described thus:—$S\frac{1}{2}$, $P\frac{2}{1}$, Col., $O\frac{2}{1}$, where S signifies sepals, P petals, Col. column, and O ovary. When expanded, the whole flower has the appearance of a Japanese Iris.

Lælio-Cattleya Orpetiana and var. Massiliensis.

In the *Gardeners' Chronicle* for April 12, 1902 (p. 238), I described, under the name of Lælio-Cattleya × Gladys, a hybrid from C. Harrisoniana × L. cinnabarina, which was figured in the June issue of the *Dictionnaire Icon. des Orchidées* (Lælio-Cattleya hybr.), t. 20. On September 6 following, five months later, M. E. O. Orpet described, under the same name of L.-C. Gladys (*American Gardening*, p. 574), another hybrid from L. tenebrosa × C. Gaskelliana alba. The name of this latter hybrid had therefore to be changed, and I altered it to L.-C. × Orpetiana.

Some time afterwards I received from M. Cleverly, gr. to M. L. Fournier, of St. Barnabé, near Marseilles, a third hybrid (from C. Gaskelliana × L. tenebrosa), the inverse to the other cross, and this I named L.-C. × Orpetiana var. Massiliensis. The sepals and petals of this are cream-white, and much flushed with bright rose, especially towards the tip; the lip is bright violet-purple, with fine yellow lines on the throat. *A. Cogniaux.*

ODONTOGLOSSUM CRISPUM "GRACE RUBY."

There have been exhibited some striking varieties of this exceedingly popular Orchid during the past few years. The one illustrated in fig. 71 is certainly handsome. The flowers are of large size and excellent form; they have a white ground, which is evenly spotted with purple spots, and the petals and lip are prettily fringed. The First-class Certificate of the Royal Horticultural Society was awarded to the variety when it was shown by Messrs. J. & A. A. McBean, Cooksbridge, at a meeting on February 24.

Fig. 71.—Odontoglossum crispum "Grace Ruby."

THE ROCK GARDEN.

PLANTS IN FLOWER.

Some interesting subjects are now peeping up on the rockery, one of the prettiest being Anemone angulosa, and the old favourite of country gardens, Hepaticas, which, when planted in clumps, is very effective; but I have found by experience that when left alone a number of years the flowers are more numerous. Just now, the pink, white, and blue are quite charming. Narcissus minimus is a very striking flower, and it shows to perfection in warm nooks. Scilla bifolia grows about 4 inches high, and is very pretty, and the sunshine of the past week has caused them to open their flowers, which are blue in colour, somewhat earlier than usual. Iris reticulata, another charming flower at this season, is always well worth a place on the rockery. Saxifraga oppositifolia, of a deep pink tint, is exceedingly pretty, and showing to advantage. Erica carnea makes a pretty display on the top of the rockery, and forms a shelter to small plants.

Great care should be exercised in the rock garden in not allowing any weeds to grow, or they will soon rob the soil and starve the plants. Labels, if old or illegible, should be replaced with new ones, or the interest in the plants will be lost. If additional soil or nutriment be required by any plant, this is the proper season to apply them. If sparrows or other of the feathered tribe are troublesome to the flowers, place a few small sticks in the ground, pass black thread round them, which will have the effect of frightening them away; and if mice are troublesome, place some of the American breakback traps about. *W. A. C.*

Schizocodon soldanelloides.

It is questionable if there are many hardy flowers which have given as much trouble to establish as the charming little Schizocodon soldanelloides, which is yet rarely seen in rock

gardens. It is a very cheap plant at home, and has been imported in great quantities, with a profoundly disappointing result to many. It is thus not surprising that the price asked for it in this country is apparently out of all proportion to that it can be bought for in Japan. The percentage of losses to importers must be very large, and of the plants obtained by private growers only a very few become established. The first really thriving plant of this Schizocodon I saw was in the wonderful garden of the late Mr. G. F. Wilson, of Oakwood, where it was growing well, and beginning to make increase. The plant was in a peaty soil, under the shade and shelter of some shrubs. Although I had previously been baffled in my attempts to grow it, seeing it thus healthy and happy I made another trial. A position was chosen on a ledge of rockwork, facing almost due east, and the pocket in which the plant was to be inserted was filled with a compost of peat and sea-sand—about equal parts. The plant was put in firmly, the soil brought up to its neck, and frequent top-dressings of a similar compost given when necessary. During dry weather in summer, free supplies of water are afforded, not mere surface waterings, but a thorough soaking of the soil. The Schizocodon gets hardly any sun, owing to a higher ledge of the rockery partially shading the position. This plant is now well established, and produces annually several of its delightful little pink, fringed flowers. The blooms are not its sole charms, for the little leaves are exquisitely coloured with chocolate, and various other tints of brown, and occasionally becomes at times almost crimson. The same position might not suit S. soldanelloides in every garden, but similar treatment might be tried with a prospect of success. From various districts I have heard of the plants becoming established, and flowering under something like the same conditions. *S. Arnott, Carsethorn, by Dumfries, N.B.*

The Week's Work.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Grasses.—These are invaluable to the gardener when arranging groups of plants in the dwelling or at horticultural shows. Of these plants the Eulalias and Isolepis gracilis are indispensable, and add finish to floral arrangements. The first named should have been resting for the past three months, but it is a mistake to allow them to get very dry even in the winter. The plants may now be relieved of most of the exhausted soil; and if necessary to increase the stock, the varieties japonica and j. zebrina may be divided, but japonica foliis striata not being such a strong grower resents too much interference at the root in that manner. Do not cut away the old stems until growth is active. Useful sized pots for these grasses are those of 4 or 5 inches in diameter; and as a potting soil, employ about equal parts of loam and leaf-soil, with a sprinkling of peat, and plenty of sand. Place in a temperature of 60°, and afford water carefully till they are re-established, when greenhouse treatment is the best for them. The Isolepis may be divided freely, and put into 3-inch pots. A few of the Carex family are useful as edgings, while Cyperus alternifolius should be raised from seed annually, sowing forthwith in heat, with merely a dusting of sand over the seed.

Forced Hardy Plants.—Deutzia gracilis, Staphylea colchica, Cerasus Watereri, double-flowered Cherry, and Ghent Azaleas should be placed in slight heat, and freely syringed, so as to encourage the growth of shoots, and afterwards afforded a gradual hardening off before placing them outdoors in April. The first-named plant may require to be trimmed into shape, the weaker shoots removed after flowering, and the spent flowers of the Azaleas removed, or growth will be poor. Less heat will be required now to bring into bloom successive batches of these plants, though overhead moisture is beneficial.

Lilies.—Keep a watchful eye on early batches of L. longiflorum Harrisii; fumigate the plants once a week, placing them near to the glass. As the blooms begin to expand, remove to a cooler house, and introduce others for succession. The pots of L. auratum, L. lancifolium, and others, should be plunged in a bed of coal-ashes in cold frames, the lights of which on mild days may be taken off. Top-dress with loam three parts and peat one part, together with crushed mortar-rubble, as soon as roots appear on the surface. I have just potted-up a batch of these, which will flower in the late autumn.

Camellias.— Plants that have passed out of flower should be syringed daily; and if any cutting back is required let it be done before the plants have made much new growth. Plants in pots or tubs do not need much pruning, but others planted in borders, we find, require to be thinned annually. They are growing in a large span-roof structure devoted to their culture, in which sun and air can penetrate among the branches, and thus ripen the new wood. Any repotting is best done immediately after flowering, and the borders may be dressed at the same time, using turfy-loam and peat in equal parts, and enough coarse silver sand to keep it sweet and porous. During the next few weeks a little fire-heat will be beneficial, and the house may be closed at about 3.30 p.m., directly after syringing. Do not let the plants become dry at the roots.

Gardenias.—Take cuttings of these, and insert half-a-dozen around the edges of each 4-inch pot, which should be nearly filled with a sandy soil containing a little fine peat; afford a bottom-heat of 75° or so in a close case. In about four weeks' time they should be fit to pot up singly, using a similar soil, and returning the plants to the case for a few days, until they have taken hold of the new soil; they may then be placed near to the glass, and be syringed once or twice daily. Stop the shoots after they have made two pairs of leaves, and repeat the process when two additional pairs have been made. Repot them again into 5½ or 6½-inch pots when fit, and they should flower well in these next spring. The soil used at the final potting should be more lumpy, and consist of equal parts of loam and peat, with a little charcoal and plenty of sand. These plants grow into good specimens if lightly pruned after flowering, and eventually placed in 8 or 9-inch pots, affording plenty of heat and moisture when growing, and giving but very little shade at any time.

THE KITCHEN GARDEN.

By John Fleming, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Asparagus.—Those beds that were top-dressed with manure in October or November should now have the manure removed, and if the soil be light, a good dressing of salt and a ½-inch layer of rich soil should be spread over the beds. Many gardeners throw the soil from the alleys in sufficient quantity to cover the beds, but on light and well drained ground I prefer to have the beds on the flat, and merely dig the alleys lightly; but in wet land, or that not well drained, or is cold and tenacious, the beds should be raised about 1 foot above the general level of the garden, with sunken alleys between. In gardens in which Asparagus is forced largely, every winter preparation should be made for sowing Asparagus-seed. The land for this vegetable should have been heavily manured, and trenched 2 to 3 spits deep; and if retentive, a heavy dressing of road-grit, wood-ashes, or finely broken mortar-rubble, should be incorporated with it. The beds may measure 4 feet in width, and the alleys 2 feet. Having squared the beds at the sides and ends, and made the surface level with the rake, draw three drills on each bed, one in the middle, and the two side ones 10 inches distant from the outer edges of the bed. In the drills sow clusters of seeds, the clusters at 1 foot apart. As soon as the seedlings are large enough to handle, thin each cluster to the strongest plant. If plants are raised annually from seed, and transplanted the next year, the preparation of the ground and the formation of the beds are the same as that described. Let the rows be thrown out with a spade to the depth of 4 inches and width of 8 inches, and having carefully spread out the roots of the Asparagus plants, cover them without loss of time, as a very slight exposure to dry air is injurious. Early Cauliflowers or Lettuces may be grown in the alleys between the beds during the first two years.

Globe Artichokes.—If offsets were potted in the autumn, and these were wintered in cold pits or frames, they will have been hardened off ere this, and may now be planted. The ground for this crop should be well manured and trenched, and the suckers planted at 3 feet from plant to plant and 4 feet between the rows, setting them rather deeply, and trampling the soil firmly about them. Place a 1 inch layer of sifted wood-ashes around each, and mulch the ground between them with stable-dung. Remove the mulch from established plants, and apply a dressing of rotten manure, forking it into the land. Decayed seaweed may be applied where obtainable in place of manure. Globe Artichokes may be grown from seed, and treated as an annual or biennial; but the method is unsatisfactory, as the varieties cannot be relied on to come true from seed.

Seakale.—The plants reserved for furnishing the latest supplies should be covered forthwith with finely-sifted coal-ashes put over the crowns to a depth of about 15 inches, so as to preserve them from the sunlight. Cuttings that were laid in as advised in an earlier calendar to callus may now be planted in trenched and manured ground in an open position. Let the surface be stirred with a fork, and the plants set out in rows 2 feet apart, and 15 inches between the plants. Plant with a dibber, just covering the crown, and placing finely-sifted coal-ashes over each. In forming permanent beds, to remain to be forced annually, it is very important to allow ample room, that is, 4 feet between the rows, and 3 feet between the plants, planting in clumps of triangular shape.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury.

Dendrobiums that have passed out of flower, and commenced to grow, should now be repotted or top-dressed, whichever is most necessary. Avoid any disturbance of plants well established in materials in a sweet condition. Pots or pans may be used if of sufficient capacity to last for two or three years, and the potting compost should consist of the best turfy peat one-half, leaf-soil one-quarter, clean chopped sphagnum one-quarter, the whole being mixed together with a sprinkling of finely broken crocks and silver-sand. The pots or pans must be well drained, and over the crocks a layer of sphagnum should be placed, and the plants potted with a moderate degree of firmness. A few heads of living sphagnum may be pricked into the surface for neatness sake. Small plants of Dendrobium should be grown in pans hung from the roof, and the larger ones placed on the stage. When a plant has become exhausted from too much flowering, pull it to pieces, remove the older useless pseudo-bulbs, and make up the plants anew; or better still, let the pieces be potted up singly in small pots, in which they may stand for a season, and the following year be put together again. The affording of water is an important part of the treatment of these plants, especially at the present season, and new growths are frequently lost through excess of water, especially newly-potted ones.

The Propagation of Dendrobiums.—The cultivator should make it his practice to propagate a few of the choicer species and varieties, which in the course of time would take the places of those that have become exhausted. The propagation is effected by cutting off well ripened back-growths, and severing at short intervals, taking the precaution to preserve a sound bud with each, and discarding any that have borne flowers. Place these to the number of four in small well-drained pots filled with chopped sphagnum and silver-sand, and resting the base of the bud upon the surface of the potting material. Place the cuttings in a warm propagating pit, and afford them an occasional syringing, but do not saturate

the compost with water. When the cuttings have made a small amount of growth a few roots will be sent forth, when a small amount of moisture may be applied, and the pot soon afterwards transferred to a light position in the warmest house to complete the season's growth.

Odontoglossum-house.—It is the usual practice to overhaul the inmates of this house generally early in the autumn, repotting those plants standing in need of it; but it sometimes happens that a great many plants at that season have not started into growth, and therefore repotting cannot be performed—however, the present season is suitable also. O. crispum and the hybrids and crosses therefrom are benefited by being placed in a leaf-soil compost, providing proper care in the subsequent treatment is afforded. A suitable compost would consist of Oak-leaves two-thirds, turfy peat one-third, a small quantity of chopped sphagnum, and a good deal of silver-sand. The pots should be large enough to accommodate the plants for a space of two years without root disturbance. The drainage should be good, but not excessive in amount, and a layer of sphagnum should cover it. Pot firmly, and insert the potting material in and amongst the roots, finishing off just below the rims of the pots, and putting some fresh sphagnum over all, clipping it evenly. If the materials used are in a moist state, no water will be required for some little time, but frequent damping between the pots and spraying overhead at suitable times are beneficial. Shade from bright sunshine; afford as much moisture when the compost becomes dry as will moisten the whole of it, but do not afford water in driblets and often.

FRUITS UNDER GLASS.

By T. H. C.

Vines raised from Eyes.—Place these in clean, well-drained 5-inch pots as soon as they are well rooted, and have made 3 to 4 inches in height, employing a compost consisting of good turfy loam two-thirds, and equal parts of leaf-mould and finely sifted horse-manure one-third, to which a small portion of pounded charcoal and mortar-rubble may be added. If the loam is not of the best quality, add a 5-inch potful of Thomson's Vine-manure to every wheelbarrowful of the compost; pot moderately firmly. If convenient, carry out this operation in the house in which the Vines are growing, and see that the soil is of the same temperatnre as that of the house. Place a thin stake to each Vine, to which it should be fastened as it increases in height. Keep the plants near to the roof-glass; maintain a warmth at night of 70°, and one of 80° to 85° by day, with ventilation more or less according to the weather. Lightly syringe the foliage on bright afternoons, and damp the paths and other surfaces.

Planting Vines.—If a vinery has to be planted, do this in June, with Vines raised this year and grown in pots or shallow boxes, carefully planting them by preference as early as possible in June. They usually grow strongly and get thoroughly established by the end of the season. By planting thus, an early crop of something else may be secured from the vinery previous to planting the Vines. At this season young one-year-old canes may be planted, just as they are bursting into growth. For the first year a well made border of 4 feet in width is ample, and if it be considered necessary, make a concrete bottom to the border. Lay up on the concrete a 9 inch layer of stone, chalk, brickbats, &c., and upon that compost to the depth of 2½ feet, consisting of rich turfy fresh loam in a rough condition, to which may be added, more or less according to the quality and texture of the loam, a sprinkling of ½ inch bones, mortar-rubble, and charcoal, or charred garden refuse or soil. Enclose the border with a temporary brick-wall set in cement, which can easily be removed backwards as the border is extended. As soon as the soil has got warmed throughout, proceed with the planting, disentangling the roots, which should have been previously afforded water, spreading them evenly out at different depths in the upper 8 inches of soil. Apply tepid water in some quantity, and a mulch of exhausted mushroom-bed manure. No matter what is the style of training that will be adopted, the Vines should not be less than 3½ to 4 feet apart when taken up the trellis. Shade them from strong sunshine till they are growing strongly, syringe them twice daily, and maintain a warm, moist condition of the air in the vinery.

Orchard-house.—As the various fruit trees come into flower, distribute the pollen daily. Syringe Plums and Cherries and other trees thrice daily as they go out of flower; and if they are infested with green or black fly, apply weak quassia extract. After all the trees have finished flowering, vaporise with XL-All, which is certain death to aphides. Ventilate continually, more or less according to the state of the weather. If the weather is cold and dull, turn on a little heat in the hot-water pipes, but at no other time, except when the weather is severe. Attend carefully to the affording of water to trees growing in pots, and after the fruits have commenced to swell, afford manure in some form. When the trees have set their fruits, syringe the foliage vigorously daily with tepid water. Close the house early in the day so as to retain some of the solar warmth.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

The Black Currant-bud Mite.—If this pest has obtained a footing in the plantation, the infested buds should be collected and burnt forthwith; a work which, if it receive careful attention for a few weeks, will do much towards saving a crop of fruit, but I fear it is impossible to eradicate this mite entirely from a plantation. In dry weather, let the land between all kinds of small fruit-bushes, &c., be hoed with a Dutch-hoe.

Wall Trees.—The weather in the south during the past week has been very unfavourable for the flowering of the Apricot and Peach, and the use of nets, tiffany, canvas, &c., as protection against frost and sleet, has been imperative. All nailing and tying of fruit-trees should be finished off soon; Cherry-trees should be copiously syringed forthwith with diluted Quassia extract, or Quassia-water, so as to carry the trees safely over the blossoming period.

Miscellaneous Hints.—On wet days prepare grafting-clay by removing stones from it, and adding a fourth of the whole of cow-dung, a sprinkling of chaff, and as much water as will make the material of the consistency of stiff mortar, putting this in an open shed, covering it with a mat. Young standard Apples and Pears, planted and staked early in the autumn, should be examined, refastening the trees, and placing the stakes upright where necessary.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Pruning Roses.—During the next week or two dwarfs and standards of the Hybrid Perpetual and Tea Roses should be pruned, commencing with the first-named, these not being so quick to break as the Teas. The unusually mild weather in most parts of the country has excited the buds near the tops of the shoots, and in some cases it will be difficult to discover any dormant buds to which the shoots may be cut back, and there will probably be much bleeding after pruning this year. All weak wood and as much other wood as can be spared from the centres of the plants should be removed, and the remaining growths shortened to a good bud pointing outwards. The method of pruning has a considerable influence on the quality and number of flowers produced; hard pruning, leaving but few buds to break on the plants, tends to high quality and the production of fewer flowers. In Moss and Cabbage Roses, all of the strong, sucker-like growths should be left intact or merely tipped, and room should be made for these by removing some of the older shoots. Pruning finished, a dressing of good manure should be applied, either to be forked into the soil lightly or as a mulch.

Ivies.—No plants are so generally serviceable as Ivies, in some of the many varieties, to clothe a wall or hide unsightly objects. They may be planted at this season, and if established plants in pots can be secured, the growth will be finer than that of plants lifted from the open ground. Though the large-leaved Ivies grow quickly, they are not so satisfactory as the smaller-leaved species for general purposes. One of the best means of keeping Ivy foliage clean and bright during the growing season is to clip it over, cutting away all old leaves.

Hollies.—Many of the finer variegated-leaved varieties exhibit a tendency to revert to the green-leaved type, and such of the shoots as do this overpower the more desirable growths, that it is very necessary to remove them, as gaps so formed in the bushes can readily be closed, provided the green shoots have not been allowed to exist for too long a period of time.

Shrubberies.—A pretty effect is obtained by planting low-growing flowering plants, and especially bulbous ones, at the margins of shrubberies, the shrubs forming the background. Vacant spaces should now be prepared by manuring and digging for plants that will be set out at a later date. When the forcing of plants is over, many of the bulbs ripened off in pots may be planted in such borders, and these will afford a quantity of flowers in the second year afterwards.

THE APIARY.

By Expert.

Seasonable hints.—The enterprising bee-keeper will now be looking forward to having everything in readiness for the bees, section-crates being cleaned, scraped, and numbered to correspond with the hives; old sections looked up and cleansed, and the worst ones destroyed, as it will be found better policy to buy new ones than to use old dirty ones which look so very bad, either exposed for sale or on the table, particularly the latter. The bee-master cannot be too particular in buying good white sections, the cost being very small; and in the matter of comb, it is quite as well to fill the sections half way across, and to take care that the comb does not bulge, or the section is likely to be built much thicker on one side than the other, which is an annoyance when packing sections in cases, especially made to take those of 1 lb. weight. Having examined the sections, ascertain how many more will be required, and order them forthwith, as many firms offer a bonus for goods ordered up to the end of March. There is a great demand for split top sections, and which for many reasons are the best, as they do away with the trouble of fixing in the foundation with glue, &c. Moreover, they are cleaner, cheaper, and certainly much more secure than others. The average number of sections should be based on the principle of sixty to one stock. It is not a good plan to order more than are required, as they get dry and brittle, and the following year a good many will get broken in the handling. In purchasing foundation, too much care cannot be taken in obtaining the best; and new foundation, like old stocked comb, is almost sure to be brittle, although it may be made a little more pliable by exposing it to the sun, or warming it before a fire.

Protecting hives.—Many bee-keepers find a difficulty in taking precautions against high winds, but there are many simple methods of securing them, viz., to drive a stake in each side of the hive, each having a notch sawn out, and secure the hive by tying a stout rope over it. Another plan is to lay a piece of rope over the hive, and attaching a heavy weight at each end, or by fastening it to a stake with a bit of hoop iron. A neat and tidy way is to fence the hives round with sheep hurdles, particularly if they are thatched.

The Great Gale in Ireland.—Further reports which reach us only confirm and extend the record we have already given of the destructive gale of February 26. Thousands of trees, including Elms, Thorns, Cedars, Silver Firs, Beech, Willows, Poplars, and even Yews, were uprooted in the Dublin parks and gardens, and at Glasnevin, Phœnix Park, Carton, Straffan, Powerscourt, and other places. The gale occurred suddenly and unexpectedly, and has occasioned more devastation than any since the "big wind" of 1839.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, MAR. 17—St. Patrick's Day.
THURSDAY, MAR. 19—Linnean Society's Meeting.
SATURDAY, MAR. 21—Spring Quarter begins.

SALES FOR THE WEEK.

MONDAY NEXT—
Roses, Fruit Trees, Liliums, Perennials, &c.. at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.

TUESDAY and THURSDAY, MARCH 17 and 19—
Palms, Bay Trees, Japanese Liliums, at Pollexfen & Co.'s Rooms.

WEDNESDAY, MARCH 18—
Azaleas, Palms and Plants, Roses, Border Plants, Ferns, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30. — Consignment of Japanese Liliums, &c , at 5 o'clock.—Bulb and Plant Sales at Stevens' Rooms.

THURSDAY NEXT—
Orchids in great variety, at 67 and 68, Cheapside, E C , by Protheroe & Morris, at 12.30.

TENDERS.

Competitive Designs for the Laying-out a Park, &c. Town Clerk, Romford.
Supply and Delivery of Shrubs, &c. Town Clerk, Tottenham.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —42·8°.

ACTUAL TEMPERATURES:—
LONDON.—*March* 11 (6 P.M.): Max. 53°; Min. 36° *March* 12 (Noon): 53°; Weather fine and bright.
PROVINCES.—*March* 11 (6 P.M.): Max. 49°, Lands End; Min. 45°, Dorchester.

The future of Chiswick.

THE paper by M. LEMOINE, translated and read by Mr. WILKS at the meeting of the Royal Horticultural Society on Feb. 24, suggests some comments—comments not altogether flattering to our powers of initiation and our enterprise as a nation, furnishing indeed once more a marked instance of our apathy and indifference towards scientific experiments and scientific teaching, even when the results are likely to be of directly practical value. In the present instance, as has been on several similar occasions pointed out in these columns, it is to Denmark, a small but eminently progressive nationality, that we owe the first experiments on the use of ether in forcing plants. It is true, of course, that CHARLES BERNARD, and very many other physiologists, long ago investigated the action of chloroform or ether on plants; but before Professor JOHANNSEN, no one, so far as we know, had attempted to turn the matter to practical account. The Danish Professor's work was speedily taken up on commercial lines by German horticulturists, and full details were given in the gardening papers of Germany and France, and a summary of the results therein given was published in our own columns.

The subject, then, is not entirely a new one; but up to the present time very few, if any, experiments have been made in this country. If we seek a reason for this indifference, we may find it in a measure in the busy life that we lead. It is not everyone who has the capacity, the leisure, or the means to carry on experiments, even of so simple a nature as those required in the etherisation of plants; the man of business, in spite of the fact that it is he who will reap the advantages of the enquiry, is in general far too much occupied with what he calls practical work, meaning merely routine, to be able to attend to anything in the least degree outside mechanical methods.

To whom, then, should we look? One reply to this question is obvious. We should look to the Royal Horticultural Society to make some use of its experimental garden; and if it did so, the Society might fairly look for assistance from those Fellows interested in scientific or in commercial horticulture. We do not think anyone who knows what Chiswick does under existing circumstances, and at what cost, can find much satisfaction in the prospect. There is nothing to be alleged against what is done there, so far as it goes. The staff is so highly capable and so zealous, that it is a pity that the labours of so efficient a body should be lost in the execution of what can be done as well or better elsewhere, and in carrying out work that no one can say is as conducive to the advance of horticulture as it might be. Time after time, as circumstances have seemed to call for it, we have urged that Chiswick should be made an experimental station, where experiments such as the ordinary gardener or man of business is precluded from undertaking, should be carried on. We are not thinking of purely scientific experiments, but of those like the use of ether in forcing, or those connected with hybridisation, which are susceptible of direct and immediate application. Suppose the results are negative; would the time and money expended be therefore thrown away? Decidedly not. An unsuccessful experiment, unsuccessful that is as to its immediate practical results, is not to be set down as a loss, but rather as a gain, for it shows what should be avoided, saves future waste of time, and probably will indicate in what direction future trials should be made. We know that the answer of the Council to any request of this kind is likely to be such as it has been before. They will courteously and benevolently say "Yes, we will grant you every facility," and there the matter will end. Years ago experiments of various kinds, one in particular of a very striking character in reference to the Potato-disease, were carried out at Chiswick under the direction of the members of the Scientific Committee. But the members of that body are most of them busy men, whose avocations are as exacting as those of any other body of men. It is unreasonable then to expect them to give their time without fee or reward. What then should be done? Here again we think the answer is obvious. Let the ordinary work of the garden proceed with as much development as possible, but let some young and competent man of science be installed to act under the advice of the Scientific Committee to devise and carry out such experiments and enquiries as seem likely to contribute towards the progress of practical horticulture. The Superintendent would, we are sure, be quite willing to co-operate with and to assist the scientific assistant, and to put at his disposal such space, labour, and material as might be required. The functions of the two officials would be different; each would be independent in his own department, but each should, and no doubt would, co-operate with his companion.

It may be asked, Where is such a man to be found? The answer to that question a few years ago would have been difficult. There were few workers in that special branch of applied physiology, and fewer openings for them. Now the conditions are so altered that there is no lack of trained students who would be competent to undertake such duties as we are contemplating.

The extra cost would be trifling relative to the advantages which might be anticipated; and the Council and the Fellows would at least feel that they got some better return for their expenditure at Chiswick than they do at present.

Instead of abandoning Chiswick, as seems to be the intention of the Council, it would be far more beneficial to retain it so long as the lease lasts, and not to attempt to make provision for an entirely new garden till the Hall has been built and paid for, and its endowment assured.

We call ourselves a practical people, and we let little Denmark take the lead, not in one, but in many, of the applications of science to practice. It is indeed full time that we heeded the injunctions of the Prince of WALES, and "wake up!"

LINNEAN SOCIETY.—On the occasion of the evening meeting held on Thursday, March 19, 1903, at 8 P.M., the following papers will be read:—1, On "Poa laxa and Poa stricta of our British Floras," by Mr. G. CLARIDGE DRUCE, M.A., F.L.S.; 2, "The Botany of the Ceylon Patanas—Part II., Anatomy of the Leaves," by Messrs. JOHN PARKIN, M.A., F.L.S., and H. H. W. PEARSON, M.A., F.L.S.

XANTHO-CALADIUM.—According to the *Revue Horticole*, M. DYBOWSKI has raised some hybrids between Xanthosoma sagittifolium and Caladium pictum. The foliage resembles that of the former plant, but with the irregular red or white spots of the latter plant. M. DYBOWSKI hopes that the hybrids will prove of value for bedding-out purposes in the summer in shady localities. They would be serviceable in the "sub-tropical garden" if their foliage should assume the rich coloration of Caladium pictum.

ASPARAGUS SPRENGERI VAR. FALCATOIDES.—A form occurring in the neighbourhood of the Orange River of robust habit, but not a trailer; the cladodes are elongated, 5 to 6 cent. long; the flowers white, followed by scarlet berries. A full description is given in the *Bulletin of the Italian Botanical Society*, 1902, p. 55.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The Liverpool auxiliary of this charity, whose President is the Right Hon. the Earl of DERBY, K.G., K.C.B., will hold its second annual smoker and festival at the Bear's Paw Restaurant, Lord Street, Liverpool, on Friday, March 20, commencing at 7.30 P.M. prompt. The Right Hon. the Lord Mayor, W. W. RUTHERFORD, M.P., in the Chair. The admission is by programme, costing 1s. The proceeds will be handed over to the Treasurer of the Institution.

THE MISSOURI BOTANICAL GARDEN.—We have often had occasion to mention this establishment at St. Louis, which owes its foundation to the far-sightedness and generosity of Mr. HENRY SHAW, an Englishman who had settled in St. Louis in 1819. Under the fostering care of Dr. TEELEASE, the establishment has assumed great importance, and in the *Popular Science Monthly* he has given a very readable account of the aims and present condition of the garden.

BOTANICAL MAGAZINE.—The plants figured in the number for March, are the following:—

Aloe rubro-violacea, tab. 7882, a noble species described by SCHWEINFURTH, who originally discovered it in southern Arabia. It is cultivated in the garden of Sir THOMAS HANBURY, at La Mortola, under the care of Mr. BERGER. The thick stems bear tufts of fleshy lance olate recurved leaves with spiny margins. The orange-coloured flowers are borne in dense spikes. The occurrence of the species so far from the headquarters of the genus in S. Africa is remarkable. Sir JOSEPH HOOKER suggests that further researches may bring to light other Arabian species.

Sophora vicifolia, Hand. tab. 7883, is a spiny undershrub with delicate pinnate foliage, and racemes of small white papilionaceous flowers, supported by violet calyces. It is a native of China, where it was found in Hupeh and also on the Tibetan frontier, where it forms large "heaths," at an elevation of from 9,000 to 13,000 feet. The plant figured was raised at Kew from seeds collected by Mr. HENRY, and is likely to be a valuable addition to our hardy or half-hardy shrubs.

Hamamelis mollis, Oliver, tab. 7884, is a Chinese species, differing from the N. American and Japanese species in its downy leaves and broader petals. It was originally collected in Hupeh by Mr. HENRY, and was afterwards found in Kiang-su by the late Mr. MARIES, by whom seeds were sent to Messrs. VEITCH. The species of Hamamelis are very interesting in the structure of their flowers, whilst their habit of flowering in the open air during the winter months renders them most desirable inmates of our gardens.

Phalænopsis Kunstleri, Hook. fil., tab. 7885.—A native of the Malay Peninsula, whence it was introduced to Sir TREVOR LAWRENCE's garden by Mr. CURTIS. The flowers are of moderate size, about 2 inches in breadth; flower-segments linear oblong, reddish-brown, with broad golden-yellow tips; lip much smaller than the segments, white, streaked with blood-red.

Chrysanthemum grande, Hook. fil., tab. 7886.—Originally described by LINNÆUS as Cotula grandis, and which has subsequently received various other appellations. It is a tall, hardy, herbaceous perennial, with narrow, hispid leaves, laciniate towards the base. The heads of flowers are about 2½ inches across, flattish, plate-like, with an involucre of numerous narrow bracts; the yellow flowers are all tubular, the ray-florets being completely wanting, as in Tanacetum. The plant was obtained by Kew from Mr. SMITH of Newry, to whom our gardens are indebted for the introduction of so many interesting hardy plants. The plant is a native of Algeria.

SELF-HELP EMIGRATION SOCIETY. — We recommend those who are thinking of emigrating to peruse the report of the Self-help Emigration Society, to be had at 39, Memorial Hall Buildings, Farringdon Street. The Society declines to help those who are not likely to become good colonists, but helps those who are suitable. There is ample room in Canada and other Colonies for those who can and will work, and are prepared to "rough" it for a time.

OXLIPS, COWSLIPS, AND PRIMROSES. — In the shape of an address to the Manchester Field Club, Mr. CHARLES BAILEY has given an interesting account of these three plants, contrasting their differences in conformation, their dimorphic structure, and its purpose, their geographical distribution in Britain and the continent. The true Oxlip, P. elatior of Jacquin, does not descend below the level of 200 feet, occurs on the boulder clay, and in newly-cleared woods. The Oxlip area is everywhere invaded by the Cowslip, but deserted by the Primrose; yet hybrids between the Oxlip and the Cowslip are most rare, whilst they are most numerous with the Primrose. The probability is that all three species had a common ancestor, whose characters were nearer to the Oxlip than to the Cowslip or the Primrose.

STOCK-TAKING: FEBRUARY.—The Trade and Navigation Returns for February constitute a volume—some 236 pages, or three-quarters of a pound of tabular returns, and a quarter of a pound heavier than the volume for January. The increase is due to several causes, fuller records principally so, going by weight alone. The Sugar Tariff was answerable for much of the decrease in importations in our last record; things have not yet shaken themselves down into normality. The value of the imports for the past month is £40,560,585, against £41,680,591 for the same period in 1902—a decrease of £1,120,006. In two sections only of these into which the imports are divided is there an increase, as will be seen on reference to the subjoined table, which speaks for itself:

IMPORTS.	1902.	1903.	Difference.
	£	£	£
Articles of food and drink—duty free	7,490,219	7,922,377	+432,158
Articles of food & drink—dutiable	8,647,539	7,736,243	−911,296

There is an increase to note in the wood and timber imports; the value for the past month £775,525, against £701,422 for the same period in 1902—the increase standing at £65,103. We come now to our usually interesting record of the fruit and vegetable imports, as follows:—

IMPORTS.	1902.	1903.	Difference.
Fruits, raw—	Cwt.	Cwt.	Cwt.
Apples	123,651	258,604	+134,953
Apricots and Peaches .	104	72	−32
Grapes	1,089	1,196	+107
Pears	854	1,920	+1,066
Plums	125	200	+75
Vegetables, raw—			
Onions ... ...bush.	637,317	670,591	+33,274
Potatos ... ... cwt.	93,190	196,483	+103,293
Tomatos... ... „	23,938	41,376	+17,438
Vegetables, raw, unenumerated ...value	£35,435	£37,699	+£2,264

From the above it will be seen that only Apricots and Peaches are on a minus scale—all others being in excess of last year. Readers of colonial intelligence, will observe with pleasure that the cultivation of fruit is ever on the increase. The general imports for the first two months of the year are valued at £86,787,100, against £91,822,939 for the same period in 1902—a decrease of £5,035,839; very possibly a different statement will be shown for March. In conclusion, we have to note a continued rise in the value of—

EXPORTS.

The value for last month is placed at £22,775,436, as against £21,312,276 for February, 1902, thus showing an increase of some £1,463,160. A noteworthy fact is shown in the statement recently published, that Glasgow ironmasters have turned the trade on both German and American makers in the matter of rails, both in quality and price. The legend attached to the armorial shield of the great Clyde city is, "Let Glasgow flourish"—so may it be. The value of the exports for the two months of 1903 is placed at £47,679,072, against £45,581,450—a gain of £2,097,622 over 1902.

CROP REPORTS.—Some surprise will, we suspect, be experienced at the report from the Board of Agriculture on the total produce of the principal crops in each county of Great Britain for 1902. The general results so far as bulk is concerned is highly favourable, the exceptions being Potatos and Hops.

FARM SCHOOL, BASINGSTOKE.—The third annual report has been issued, and is of a very interesting character. It is mainly devoted to agricultural subjects, but gardening is not altogether neglected:—

"In the general work, attention has been devoted rather to the need for demonstrating good methods of cultivation than to experiment. Here, as in other departments, explanations are given of methods while the practical work is in progress. It may now confidently be said that the gardens are in such a state that they can be freely used as an adjunct to the class-room, a position impossible while they were being laid out; and students with a previous knowledge of gardening are in a more satisfactory position with regard to demonstrations.

The fruit-trees are well established, and all stocks purchased during the first year have been grafted, with the help of the students.

Weather observations form a part of the instruction, and the students throughout the year keep records of the barometer, maximum and minimum thermometer, the rain gauge, and hygrometer.

It is satisfactory to have to report that two of the students gave up places as under-gardeners to come to the school, and remained over a longer period than at first intended.

GARDEN POTATO EXPERIMENTS.

The most important experiment was one designed to throw light on the advantages or otherwise of a change of seed. Eleven varieties were selected, an equal weight and number taken from the farm stock, and grown against the same varieties purchased from the grower. These were weighed and counted, and all the varieties were planted on April 28, 1902, in soil well worked and in a good state of fertility. The weight taken of each variety for all the experiments was 5 lbs., consisting of thirty sets; the rows were 40 feet long, 2 feet apart; they were earthed up on June 12, and dug on September 24."

The advantages of a change of seed are most marked.

THE GHENT QUINQUENNIAL.—More than 6,000 mètres superficial will be required for the exhibition of plants under cover.

EULOPHIELLA PEETERSIANA [see *Gard. Chron.*, April 2, 1898, p. 200, and Supplementary Illustration].—This handsome Orchid is now in flower under Mr. MOORE's care at Glasnevin. The leaves, ten in number, are about 4 feet in length; the flower-spike is over 5 feet in length, with twenty-eight flowers.

TRADERS IN POISONOUS COMPOUNDS FOR TRADE PURPOSES PROTECTION SOCIETY.—A deputation from this Society, consisting of Mr. T. G. DOBBS (Secretary), Mr. G. H. RICHARDS, and Mr. PEED, were received by the Council of the Royal Horticultural Society, and Sir TREVOR LAWRENCE, President, at their offices, Victoria Street, Westminster, on Tuesday, the 10th inst. After hearing Mr. DOBBS on the subject of the necessity of amendment of the Pharmacy Act of 1868 in favour of allowing licensed persons to retail poisonous compounds required for horticultural and agricultural purposes, the Council passed a resolution in favour of the recommendations of the Departmental Poisons Committee, appointed by the Privy Council, and requesting the Government to adopt the recommendations; and a petition in favour of licensed persons having the right to sell was signed by the Chairman on behalf of the Council of the Royal Horticultural Society.

MR. T. LUNT'S JUBILEE AS HEAD GARDENER AT ARDGOWAN.—"Twenty-five years is a long time in any man's life," but Mr. THOMAS LUNT, the veteran gardener, has just doubled this period, having on Sunday, March 8, completed

fifty years as head gardener at Ardgowan, Renfrewshire. Half-a-century ago, Mr. Lunt was foreman, under the late Mr. J. Collinson, at Eaton Hall, where he remained for seven years; and shortly after the marriage of the Lady Octavia Grosvenor, sister of the late Duke of Westminster, to Sir M. R. Shaw-Stewart, Bart., of Ardgowan, he followed her ladyship to that place as head gardener. The fine range of glass was rebuilt during Mr. Lunt's time, which has been visited by many eminent horticulturists and others from year to year, and described in your columns in the autumn of 1901. As is well known, two of Mr. Lunt's sons are clever members of the gardening profession. Mr. Thomas Lunt, jun., gardener at Keir, Dunblane, who needs no introduction to readers of these pages, as his name is constantly to the fore as a prize-winner at flower shows all over the country, is one; while the other is Mr. John C. Lunt, gardener to the Duke of Buccleuch at Bowhill, Selkirkshire. In spite of his seventy-four years, Mr. Lunt is almost juvenile in his movements, and carries on the work of the extensive gardens in a manner so methodical and accurate, that it would be a lesson to men in any profession. The writer had the pleasure of visiting Mr. Lunt on Saturday last, and it will please his many friends to know that he is still in the enjoyment of the best of health. It is interesting to note that Sir Michael and Lady Octavia Shaw-Stewart celebrated their golden wedding in December last. *D. G. P.*

Magnolia Campbelli.—In reference to the flowers of this handsome species shown by Mr. Gumbleton at the meeting of the Royal Horticultural Society on Tuesday last, we are informed by Mr. Gumbleton that his tree is bearing 147 blooms, and the present mild weather permits them to open freely. See also pp. 172, 173, 174.

Meteorology in the Orange River Colony.—A Meteorological Institute has been established at Bloemfontein, and sub-stations are being established in various places, whence records from all points will be passed through to the chief station. So far the observations taken promise a very interesting study, and, it is said, show remarkable variations of conditions throughout the Colony, both as regards one part in relation to others, and in the daily changes at some stations. The systematic study of the subject should prove of much value to the Colony.

Shakespeare and Virgil Gardens at Harvard.—In the Harvard Botanical Gardens there are certain beds devoted to the cultivation of plants mentioned by Virgil and by Shakespeare. The idea has been well thought out, and as all the specimens are clearly labelled, visitors have no difficulty in recognising plants hitherto known to them by name only. Shakespeare's flowers are, for the most part, as familiar to Englishmen now as they were to the bard himself; but all Americans have not the same acquaintance with our wood and garden favourites, and so take much interest in these plantations. The plants of Virgil, not so well suited to the North American climate, come fresh to the unbotanical but classical scholars of both nations.

Ginseng.—Repeated attempts to grow this plant (Aralia quinquefolia) at Kew have been uniformly unsuccessful. I should be very much indebted to anyone who would tell me how to succeed under the climatic conditions which obtain in the south of England. The *Kew Bulletin* for 1893, pp. 71—75, contains an account of the plant, and of the method of cultivation adopted in the United States. The only market for the root is in China, where it is highly esteemed as a stomachic. Whether it has really any definite physiological or therapeutical properties has never been ascertained. *W. T. Thiselton-Dyer.*

Horticultural Hall.—Among those who have responded to the appeal is Lord Llangattock, who sends a cheque for £100 with a sympathetic message. We have received a cheque for £2 2s. from the Chester Paxton Society, which we have forwarded to Mr. Ingram.

The Priaulx Patent Trough.—In regard to the trough for the cultivation of Tomatos and other plants, illustrated in our issue for February 7, we understand the Company has applied for patent rights in France, Belgium, Germany, and the United States. The first English cultivator to test the troughs on a large scale is an enterprising grower at Worthing.

Prevention of Corruption Bill.—The Lord Chancellor moved, in the House of Lords on Tuesday last, the second reading of a Bill for the better prevention of corruption. His lordship said that the practice against which the Bill was directed, of giving secret commissions, was, he regretted to believe, very much on the increase. Few people realised the extent with which it had spread, and was spreading; and the report of a committee of Chambers of Commerce from which he quoted showed that it had extended also to the professions, for there was an example cited of a medical man who received commissions from undertakers. His lordship also quoted from the letter which appeared in the *Times* on the 2nd inst. from a member of a leading firm of horticulturists, complaining of the extent to which bribery was carried on among gardeners, and representing themselves as the helpless victims of a practice which they deplored. The latest development was in the motor car industry. Motor cars were very complicated pieces of machinery, and required great care on the part of those who managed them; and the form of secret commission adopted in this case consisted in a payment to the person who was responsible to his employer for the care of the machine on the annual bill for repairs. Under such circumstances nobody would suppose that the motor would be very well cared for. The Bill provided, *inter alia*, that "if any agent corruptly and without the knowledge of his principal accepts or obtains, or agrees to accept or attempts to obtain, from any person, for himself or for any other person, any gift or consideration as an inducement or reward, for doing or forbearing to do any act in relation to his principal's business, or for showing or forbearing to show favour or disfavour to any person in relation to his principal's business; or if any person corruptly gives or offers any gift or consideration to any agent as an inducement or reward . . . . shall be guilty of a misdemeanour, and shall be liable on conviction on indictment to imprisonment." He anticipated that such an enactment would have an indirect as well as a direct effect. No doubt there were many people who submitted to this evil with great reluctance, but who might feel at the same time that in the keen competition of trade they had no alternative. The indirect effect of such an enactment would be even greater that the actual putting of it in force. He hoped their lordships would facilitate the passage of the Bill, in order that this great blot on our mercantile system might be removed. The Lord Chancellor further said that the word "corruptly" governed the whole matter, and he thought that without it there was no chance of passing the Bill into law. No jury would convict, and indeed ought not to convict, unless they came to the conclusion that the money passed corruptly for the purpose of influencing business. Lord Alverstone said the evidence showing the necessity for the Bill was growing day by day. Many people thought that the Bill struck at the payment of commissions in any circumstances. But there were many honourable trades in which the remuneration was solely by commission, and therefore it was absolutely necessary to retain the word "corruptly," so that the Bill might affect only the agent who secretly paid commissions for the purpose of influencing persons to buy his master's goods. There was one point in regard to which he thought the Bill needed amendment. He did not think it sufficiently dealt with commissions paid for past services. It often happened that corrupt commissions were not paid at the time of the business transaction, but after the order was completed some method was found of remunerating the agent. The Bill was read the second time. *Times.*

Use of Leaf-mould in Orchid Culture.—M. Lucien Linden writes to us as follows concerning the use of leaf-mould for Orchids, he says: "I thought it right last year to utter, through the *Gardeners' Chronicle*, a warning against the employment of leaf-mould in the cultivation of Orchids. I have since had still further occasion to notice how prejudicial the material is for these plants, which at first seem improved, but afterwards are killed by it. You would render a service to Orchid-growers by repeating this caution, using my name in connection with it if you wish to do so."

ECHINOCACTUS DELAETI: MELOCACTI AND ECHINOCACTI.

[Supplementary Illustrations.]

The species Echinocactus Delaeti is very rare in its native country, the Argentine Republic, and more so in cultivation. The stem is hemispherical, the crown rounded and somewhat depressed, without woolly tufts, and surmounted by interlacing spines; in the young plant it is dull (that is, not glossy), and light green in colour. The warts are arranged in the eighth and thirteenth rows, and are bluntly four-sided. On the obliquely-set tips are situated the elliptical areoles, which bend forwards, and are about a ¼ inch long. They are at first covered with white felt, but this turns grey and soon falls off. The spines are, as a rule, in sets of seven. They are crowded together, curved, sharply-pointed, and dark in the new shoots; but later they become reddish, and finally, dull grey.

The second pair, counting from above, is the longest, and attains to a length of 1¼ inch. The flowers appear on the front part of the stem in the neighbourhood of the crown. The ovary is slender, cylindrical, olive-green, and covered with a few semi-elliptical scales. They are olive-green in colour, and are bordered with rose colour. The length of the whole flower is about 2 inches; its diameter is inconsiderable, because the flower rarely opens fully. The outermost sepals are trapezoidal, becoming spatulate in form, contracting almost to the shape of a finger-nail at the base, and blunt at the end. The petals are oblong, hollowed, and finely pointed, and of a rosy-red colour. The stigmas reach quite to the edge of the petals; they are placed, as in Echinopsis, in two rows, of which the inner circle rests on the edge of the lower, narrow, outer-most petals, where these widen out cup-like, but the upper row is separated further from it, and is adhering in the upper part. The filaments are white, the anther case greyish-white; the fairly strong white style is marked by twelve yellow scars.

The plant shown in the Supplementary Illustration has seventeen flowers, which form a circle round the plant, and remain open four to six days. The colour of the flowers is pale rose, and the fruits are oval in shape. The plant thrives in a compost of peaty soil and leaf-mould.

It is necessary, in order to avoid all error, to mention here Echinocactus Schickendantzii (Web.), which M. de Laet says that he had just received from the Argentine Republic. This variety, while greatly resembling the Echino-

cactus de Laeti (K. Sch.), appreciably differs, however, in the placing of the tubercles, the form of the spines, and the season of its flowering.

The upper fig. in our illustration shows Echinocacti and Melocacti in the possession of Mr. C. Darrah, Holly Point, Heaton Mersey, Lancashire. These interesting plants are of easy cultivation, needing in most cases the shelter of a greenhouse, and to be potted in turfy loam, to which a very small portion of leaf-mould may be added if the loam be of poor quality, and some finely-broken sandstone or charred loam to let moisture pass readily away. Potted in these materials, the plants require root-disturbance but seldom if worms be kept out of the pots and the drainage is not clogged with soil. For neatness sake, a surfacing of fresh soil should be applied once a year after removing as much of the stale soil as can be done without disturbing many of the roots. The taller plants observed in the view are either Cereus or Euphorbias, which require much the same kind of treatment as Melocactus.

OXALIS CRENATA.

This excellent vegetable is but little known in European gardens, although it has been introduced for many years (fig. 72). This is due to a little technical difficulty in its proper cultivation, which can be easily overcome.

This Oxalis is synonymous with the "Oka" of Peru, and is known in some parts of Bolivia as "Camote," this term being applied indiscriminately in various parts of Bolivia to almost any small, sweet edible tuber. It has never flowered at Isleworth, but is sufficiently hardy to make a luxuriant growth every summer. It is said that the foliage and stems are edible when cooked, but it is the tubers upon which I depend as a vegetable.

The formation of underground tubers is subject to laws at present obscure, not only in this plant, but in many others. In the case of Oxalis crenata, no tubers are formed (in the ordinary course) until the growth of foliage suffers arrest from the declining temperature of autumn; this usually occurs early in October at Isleworth. Now follows the critical period. If October and November are free from frost, a fine crop can be gathered in December.

If, on the other hand, frost follows shortly on the arrest of leaf-growth, it is obvious that no large tubers can be formed, because once the foliage is killed, there is nothing left out of which they can be formed. Therefore, the sole technical difficulty in securing a crop is that of keeping the foliage alive through October and November. This can easily be done in many parts of England. It is rare, even in the London district, for any frost in these months to penetrate the ground, and a few hurdles, bracken, or litter, form a sufficient covering to ward off danger. Generally, the plant is of the same hardiness as our garden Potato, but the Oka has this advantage, that it can grow through severe drought, and is not subject to disease. It will never be a rival to the Potato; the tubers are not large enough, being only 1½ to 2 inches long. Yet it has many advantages in its unique and delicious flavour, in its long-keeping capacity, and in the fact that it requires no preparation whatever before cooking, so that the relatively small size of the tubers is no disadvantage it only there are enough of them.

Again, if a vegetable is wanted in a hurry, these tubers can be prepared for table in about three minutes, and can be put to endless culinary uses. I do not, however, see how it will be possible to raise any improved varieties, unless flowers can be produced under glass.

On one matter I am in doubt, and that is whether two different plants have not been described under the same name in British gardens.

The Oxalis crenata of Sweet's *British Flower Garden* (series ii, 125) is described in Nicholson's *Dictionary of Gardening* as an "annual," with "erect leafy stems." My plants are true perennials, and have prostrate and ultimately ascending stems. The shape of the tubers is also different. Still, descriptions are often imperfect, and the plant shows much variability. *A. Worsley.*

HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY.—The reading of the remarks by Sir John Hutton on the above Society gave me much amusement. Sir J. Hutton's letter has, I fear, "let the cat out of the bag," which has been kept so closely tied up. We country Fellows had no idea of the proposal to let out the new Hall for exhibitions, concerts, meetings, music, dancing, &c., which is all perhaps innocent enough, so far as we know, or care to know. According to present arrangements, the Hall will only be required for horticultural purposes once a fortnight, and it would be both a pity and a waste that such a grand Hall should remain unused from one fortnightly meeting to another. We do not find fault with this, because it is all in a legitimate way of making money, "though it may not be horticulture." "It is money that makes the mare to go," and this is just what the Royal Horticultural Society is much in need of. After all these years of purely horticultural sailing, the Council have evidently come to the conclusion that they cannot sail their ship successfully without their sails being filled with more propitious breezes; and for this purpose they show their wisdom in copying the methods of the Royal Botanic Society, the Shropshire Horticultural, and many other similar ones, by introducing any kind of a respectable show to draw people to bring them gate-money. 'Tis true, and of which this is another proof, namely, that nothing is more likely to happen than the unexpected. The building of the great Hall long wished for has at last been settled, artificers have been set to work, and money must be found somehow to pay the cost. We hope to see the new Hall opened by a great banquet to nurserymen and gardeners. I remember one of this sort at which many were brought together, and without which they would never have come; but somehow, in coming away the hats got mixed, and everybody went home wearing some other person's hat. Next morning, Mr. Harry J. Veitch, then a beardless boy, on hearing of my loss, sent along to my lodgings a tremendous great hat, which, when put on, completely encased my head and rested upon my shoulders. *W. Miller.*

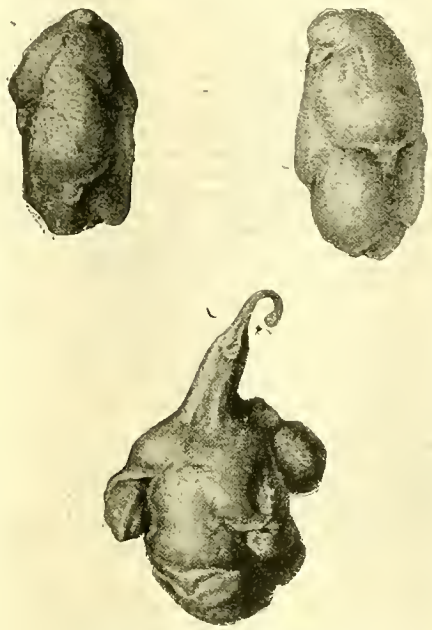


Fig. 72.—Tubers of "Oxalis crenata" sub-scaley (like a lily-bulb), but solid.

Colour carmine-red, on exposure to light; yellow when first lifted; weight ½ ounce.

GINSENG (PANAX QUINQUEFOLIUM). — In Rhind's *Vegetable Kingdom*, I find a very good description of Ginseng; but Rhind is evidently sceptic of its reputed reeuperative value as believed in by the Chinese, and gives it as his opinion that Jartoux allowed himself to be converted to the belief that the eating of the plant, or rather root, in its raw state, had the stimulating effect described by him. Jartoux, however, continued to eat the root, and one would think that such a man would not lend himself to the dissemination of views in which he did not believe. Be that as it may, it must be a long time since either Jartoux or Rhind wrote. It is nevertheless true, that at the present time, no matter who believes in its efficacy or otherwise, there is evidently a large demand for the root, as it appears to be extensively grown in the United States, whether in all of them, I am not aware, as a valuable commercial enterprise. The seed of Ginseng, my friend told me, was very dear in the State of New York, where he made its acquaintance. Obseek, alluding to Rhind, says that he never looked into an apothecary's shop in China but they were always selling Ginseng; that poor people, and those of the highest rank, made use of it; and that they boiled ½ oz. in their tea and in soup every morning, as a remedy for consumption and other diseases. Probably the enquiry in last week's *Gardeners' Chronicle* may elicit some information, and throw some light upon the reason for the cultivation of such a remunerative plant in the United States. In this country the plant, on the contrary, is known only as an occasional herbaceous plant in botanical collections. Whether the Americans owe their success to their more clever adaptation in catering for that for which there is a demand than is the case with ourselves, or have they some advantage in the matter of climate, we do not know; for be it remembered that whilst their climate is sometimes much hotter than ours, it is also at times very much colder. *W. Miller, Berkswell.*

—— In answer to your correspondent, Mr. W. Miller, in a recent issue of the *Gardeners' Chronicle*, p. 155, with respect to the cultivation of Ginseng, the first consideration is that of soil, which should be a light, friable loam, rich in vegetable mould, should possess good drainage. The choice should not fall upon a clay soil, or a heavy clay loam. Ginseng seed will not germinate until it has been kept eighteen months after maturing, and during this interval it must not be allowed to become dry. The soil should be well prepared by digging, and be enriched with farmyard manure. The roots or seed may be planted during the month of October, setting them 8 inches apart each way. In planting the roots, a dibber 10 ins. long is required; and the holes must be made deep enough to admit the longest root without bending. This is an important matter, to insure the development of straight roots for the harvest. The top of the root, or "bud," should be placed 2 inches deep. The seeds may be planted in shallow drills, dropping them 1 inch apart, and covering them with an inch of fine soil, afterwards thinning out to the proper distance. In November the entire bed may be mulched with a good covering of leaves; and this mulch should be removed in the following April. About three times during the growing season the surface soil may be broken up, and the weeds removed. In America artificial shade is always required, a lattice-work structure being erected over the beds. The care of Ginseng after it is planted and shaded is exceedingly light and simple. The roots should be taken up in the following October, care being taken in the digging to avoid breaking them. All roots under ½-inch in diameter should be set apart for future planting. The selected roots for marketing are

dried by spreading them on trays or tables in the sun. This method will require six or eight weeks. A quicker and better method is to use artificial heat, and subject the roots to a temperature of 100° to 120° Fahr. By this method the roots may be dried in nineteen days. Roots in drying lose about two-thirds of their weight. *J. J. Willis, Harpenden*

MAGNOLIA CAMPBELLI AT ABBOTSBURY.—This somewhat rare species of Magnolia is now very nicely in blossom here; its first blossom opened at the end of February, and now four of them are fully expanded. The tree which has been fostered with greatest care for many years was at the instance of the Earl of Ilchester transferred from its former place against a south wall, where it had grown steadily, to a more open position, which it was thought would be required if the species were to assume here anything like the dimensions described by Sir Joseph Hooker in his *Illustrations of Himalayan Plants*. The Abbotsbury specimen mentioned was removed from its snug situation against a wall in the spring of 1896, at which time it measured about 8 ft. by 8 ft., having been trained somewhat in espalier fashion. At this time his lordship considerably enlarged the subtropical grounds, and personally selected a site, which was more open, by the side of a bank which slopes down to a moist dell, of which the soil was alluvial. Here the tree assumed its true character, and it is now a well developed, branched specimen of 25 feet high, representing an annual growth of over 2 feet from the time of its removal. It is quite the earliest of the many species and varieties of deciduous Magnolias to flower here, being two to three weeks in advance of M. conspicua, M. stellata, and others. M. conspicua in the new winter garden is barely open at the time of writing; and the aged specimens of the same about the grounds are only just showing signs of swelling their hairy-like calyces. The flowers of the Abbotsbury tree are a bright flesh colour, much resembling Nymphæa carnea. The essential organs, style and stigmas, are suffused-crimson. In size the flowers are equal to those of M. grandiflora, measuring 8 inches in diameter, but more delicate in substance. Luckily for our specimen, it is flanked on the north-east by a goodly Quercus Ilex. Not far distant, again, is a crescent-shaped group of the same, which being evergreen, form a screen against the colder winds. M. Campbelli is delicately scented, in spite of the recent heavy rains and cloudy skies; and although not so robust, perhaps, as M. grandiflora, it is not quite so sensitive to injury by rough weather. In spite of heavy rains and wind, M. Campbelli has come through the ordeal very well. I have lately sent away two perfect expanded blossoms of M. Campbelli, which have been quite exposed to the recent inclement weather. *Joseph Benbow, gr. to the Earl of Ilchester, Abbotsbury Castle, Dorsetshire.* [A photograph of Magnolia Campbelli, kindly sent by Mr. Benbow, was unsuited to our uses. Ed.]

COMMISSIONS.—The question of commissions to gardeners is a very important one, and much further-reaching than appears on the surface. I think it is the greatest cause of the low wages paid to gardeners, who accept low wages knowing they will receive an addition by commissions, whilst employers in general are quite aware of the practice, and feeling their inability to prevent it, are content to let their gardeners' wages be supplemented in this way by the tradesmen, and this state of things must continue until the practice is absolutely abolished. There would perhaps be little objection to it, if it were merely the question of a gardener receiving a certain amount with the knowledge of his employer, but the mischief of it is that the servant has a strong inducement to increase his requirements of all sorts of sundries, as well as of seeds and plants; and it must be an exceptionally upright man who can resist the temptation held out to him, backed up by the pressure of keen travellers. Besides, he is encouraged by the knowledge that it is the tradesman, and not his master, who would benefit by his refusal to accept the commission. I have it on good authority that every firm in the horticultural trade gives at the least 5 per cent., and that a great many firms exceed this amount considerably. One nurseryman tells me that it is his rule never to make any promise even when asked as an inducement to give orders. This is sheer nonsense, for every gardener knows perfectly well that he can rely upon the usual payment being forthcoming. There is, no doubt, some advantage in ventilating the subject, and it may tend to strengthen the hands of those who are trying to bring about legislation against secret commissions, otherwise I fear it will not have much effect in abating the evil. *Investigator.*

GRADUS PEA.—Having read in a recent issue of the *Gardeners' Chronicle* statements to the effect that Gradus Pea is difficult to grow, I would like to bear testimony to the fact that it has proved the reverse of this at Barton Hall, being there a strong grower, an exceptionally good cropper, and the peas are of excellent flavour. I am growing the variety extensively this year; it has become a general favourite in the eastern counties. *L. E. Walker, gr., Barton Hall, Bury St. Edmunds.*

BUILDING A FRUIT-ROOM.—The information "Subscriber" says he had given him by a gentleman, that Apples and Pears keep best set simply in a dark cellar with little light and ventilation, is good. My experience coincides with this advice, and I would recommend that he should give it a trial, as I am sure he will be pleased with the result. I have always found fruits do not keep so well above-ground, for the injurious sudden changes of temperature cannot then be avoided. Through some building operations I lost my Apple-room, and had to store the fruits in a cellar for a few seasons, and I was surprised at the difference in the length of time that the fruits kept in good condition. On referring to my book, I note that I was supplying dessert and culinary Apples to the family in London as late as June 8, 1900. Unfortunately, I have lost this useful place, but hope to imitate it, or improve upon it, at some future time. The advice given to "Subscriber" by different writers in your paper is good, and need not be very costly. I would not excavate below the level of the ground, as for cellars, if it could be avoided; and banks and mounds of soil are often found in gardens, which might be made use of for this purpose. Let the walls be built upright, the roof arched over with brick, having ventilators at the top and ends, to close at will, the top ventilators being made to open to admit the light. In building the side walls, I would insert inch-thick slates of the width required to form the shelves for the fruit, which would avoid objectionable uprights, that are always in the way. The outside of the brick-work should be cemented to make it water-proof. Drain the building thoroughly, and next to the cement covering put gravel, stones, or broken bricks, and then cover it with soil at least 2 feet deep all over; or make the outside of the covering of soil of any desired depth to suit the purpose. Shrubs might be planted all over it, or it might be turfed. Only the doorway need show, and the other end could be masked with earth, putting in 6-inch socket pipes to admit air to the end ventilators; these pipes should also have a perforated covering. A brick or stone floor would be the best; rough bricks might be used for all parts except the one end that will be seen. Pears will not ripen very quickly in the low temperature of such a store, and would have to be removed to a warmer room as required, thus prolonging their season. The slate shelves should not be much wider, if any, than one can reach over comfortably, and not be set too closely together. *J. Lambert, Powis Castle Gardens, Welshpool.*

A NATIONAL PANSY AND VIOLA SOCIETY.—We have national shows for Carnations, Chrysanthemums, Dahlias, and Roses; why not a National Pansy and Viola Show in England? There can be little doubt, I think, that of late years much progress has been made by professional and amateur growers in the cultivation and improvement of Pansies and Violas, more especially in the latter, which are becoming exceedingly popular, having made rapid strides in their size, form, substance, and other good qualities, that I believe the time is now ripe for an endeavour on the part of growers in England to form a society which shall have the power to re-classify, lay down new properties suitable to the present age, award certificates of merit to varieties submitted for adjudication, and to organise a national show. I shall be glad to receive communications from any gentlemen, professional or amateur, who would kindly co-operate in such a movement by sending me their views on the subject, and the extent of support I might expect from them prior to calling a meeting to go more fully into the matter. *A. S. Treacher, Viola Specialist, Leicester Road, New Barnet.*

ARAUCARIA IMBRICATA.—Being interested by reading the particulars of the Araucaria imbricata, figured in *Gardeners' Chronicle* for February 14, I have measured a tree which grows in these grounds. The dimensions are as follows:—height 46 ft. 8 ins.; spread of branches at 8 ft. from the ground, 33 ft. 6 ins.; and circumference of stem at the same distance from the ground, 6 feet 5 inches. *F. Juniper, The Gardens, Rydinghurst, Cranleigh, Surrey.* [The P.O. for 1s. 6d. has been passed to the Secretary of the Gardeners' Orphan Fund. Ed.]

SOCIETIES.

ROYAL HORTICULTURAL.

March 10.—The ordinary fortnightly meeting of the Committees was held on the above date in the Drill Hall, Buckingham Gate, Westminster. The weather out-of-doors being wet and disagreeable, a most striking contrast was made by the extensive display of flowers exhibited. In the afternoon particularly, the number of visitors was large. The season for Orchids to flower having now well commenced, exhibits of them are becoming numerous at each meeting. On this occasion the Orchid Committee recommended as many as ten Medals, also a Botanical Certificate, a First-class Certificate, an Award of Merit, and two Cultural Commendations. The Floral Committee awarded nine Medals, two First-class Certificates, and three Awards of Merit. The groups of plants before this Committee included Cyclamens, Clivias, Hippeastrums, Hardy Rhododendrons (Azaleas), Ferns, forced shrubs, and hardy plants in flower.

The Narcissus Committee met for the first time this season, and awarded two Medals, but no award to a novelty.

The Fruit and Vegetable Committee sat for a very short time, and had little but the state of the weather to discuss.

In the afternoon seventy-seven new Fellows were elected to the privileges of the Society, making the number elected since December 400. The Rev. George Henslow delivered a lecture upon "Natural Selection *v.* Adaptation," in which he traversed some of the statements of Darwin.

Floral Committee.

Present: W. Marshall, Esq. (in the Chair); and Messrs. J. Hudson, G. Nicholson, R. Dean, Jno. Green, J. Jennings, A. Perry, W. Howe, J. A. Nix, C. R. Fielder, C. Dixon, C. W. Knowles, C. J. Salter, C. Jeffries, H. J. Cutbush, R. W. Wallace, J. W. Barr, R. C. Notcutt, H. J. Jones, C. E. Shea, W. P. Thomson, E. H. Jenkins, C. Blick, G. Paul, and H. B. May.

Messrs. J. Hill & Son, Barrowfield Nursery, Lower Edmonton, had a large and attractive exhibit of Ferns. At the back of the group were plants of some of the larger-growing species, as Asplenium caudatum, Cibotium Schiedii, &c.; and in suspended pots, two excellent plants of Gymnogramma schizophylla gloriosa. Among tinted Ferns, small plants of Lomaria L'Herminieri were prominent, and Doodia aspera multifida, Blechnum brasiliense, B. latifolium, &c. (Silver-gilt Banksian Medal).

Mr. H. B. May, Dyson's Lane Nurseries, Upper Edmonton, London, N., exhibited more plants of Clematis than on the previous occasion, the varieties were much the same, but in addition were Lady Londesborough, pale mauve, medium size, excellent form; and the well-known white one, Mrs. Quilter. The exhibit also included tree Carnation, Prince of Wales, colour, deep crimson; the new Pteris Summersii, and other choice Ferns, Boronia heterophylla, some well-grown plants of Gardenia florida, in flower, &c. (Silver Flora Medal).

A group of Clivias (Imantophyllum), from Lady Bathurst, Cirencester House, Cirencester (gr., Mr. T. Arnold), was remarkable for the quality of the plants, and for their cultivation. There were about twenty

plants in 7-inch and 8-in. pots, and many of them had two good flower-spikes. In one case an Award of Merit was recommended (Bronze Banksian Medal).

Messrs. Jas. Veitch & Sons, Royal Exotic Nurseries, King's Road, Chelsea, exhibited a batch of the new Primula × Kewensis, and a batch of Cinerarias of the type described as Feltham Beauty. This strain is a dwarf, compact growing form of the stellata section, and produces good heads of bloom in a great variety of colours.

A group of Hippeastrums was shown by F. A Bevan, Esq., Trent Park, Barnet (gr., Mr. H. Parr). There were about fifty plants, all of which had strong spikes of flower. The varieties were all more or less red in colour, and the collection might be improved by the addition of some varieties that produce flowers of lighter colour (Bronze Banksian Medal).

Messrs. Hugh Low & Co., Bush Hill Park Nurseries, Enfield, exhibited a number of varieties of Rhododendron (Azalea) indica, nice little plants in 5-inch pots, and full of flower. Very attractive were the varieties John Uytens, light red, with white margins; Niobe, pure white, double; Vervaeneana rosea, rich in colour, and double; Queen of Whites, very fine, single white. Boronia megastigma, Japanese Acers, Acacia Drummondi, A. ovata, and other choice plants, were included in this exhibit.

Another large exhibit of varieties of Rhododendron (Azalea) mollis, and of the "rustica" section, was made by Messrs. R. & G. Cuthbert, Southgate nurseries, Middlesex; the flowers generally were rather richer in colour than when plants were shown on the last occasion. The best of the mollis varieties were Madame C. Legrelle d'Hanis, reddish colour and bronze; Théresa, rich pink colour; Comte de Quincy, yellow; and some very attractive varieties yet unnamed. Of the rustica section, Apelius, a double red variety, is worthy recommendation. Throughout the group were interspersed varieties of Japanese Maples and of Ferns (Silver Banksian Medal).

Mr. Jno. Russell, Richmond Nurseries, Richmond, Surrey, exhibited a prettily arranged group of forced trees and shrubs, amongst which several nice specimens of the variegated variety of Dimorphanthus (Aralia) mandchuricus were noticeable. Of the forced species, Cerasus Watereri, "Ghent Azaleas" or Rhododendrons, Laburnums, Prunus triloba, Cratægus oxyacantha alba plena, &c.; and the group included varieties of Clematis, including C. iodivisa, some large plants of Dracæna Russelliana, and the little Campanula Balchiniana.

Mr. G. Reuthe, The Fox Hill Hardy Plant Nursery, Keston, Kent, exhibited a collection of hardy plants in pots. There were numerous specimens of Shortia galacifolia in flower, also the new and charming Fritillaria askhabadensis, which was figured in these pages last season; Hepaticas, Iris histrioides, and the trumpet Daffodil N. spurius coronarius.

Some excellent flowers, cut with long stems attached, of Camellia reticulata were shown by Ernest Hills, Esq., Redleaf, Penshurst (gr., Mr. Geo. Ringham).

Messrs. W. Cutbush & Son, Highgate, London, again exhibited flowers of their newer Tree Carnations, as Mrs. S. J. Brooks, white; Viscount Kitchener, red and white; Lady de Ramsay, Sir Hector Macdonald, &c. Also several of the best varieties of the Souvenir de la Malmaison type.

A collection of young Cactaceous plants, in 3-inch pots, including a few of the hardy species of Opuntia, was shown by Mr. Richard Anker, 54, George Street, Baker Street, London, W.

A collection of forced Tulips, in pots, from Messrs. B. S. Williams & Son, Victoria and Paradise Nurseries, Upper Holloway, London, N., included all the best varieties for forcing or for massing in the flower garden. The newest is a yellow variety named Prince de Ligny, which is probably better than Canary Bird, or even Chrysolora.

A few pretty blooms of new Roses were shown by Messrs. Frank Cant & Co., Braiswick Nursery, Colchester; the varieties were Lady Battersea, Lady Roberts (already figured in these pages), and Lady Mary Corsy, pale lemon yellow.

Messrs. H. Cannell & Sons, Swanley, Kent, exhibited another display of Cyclamens, which included over seventy plants, abundantly flowered.

A beautiful illustration of the greenhouse shrub Rogeria cordata was contained in a group of plants shown by Messrs. T. Cripps & Son, Tunbridge Wells. Those of Rogeria were well-flowered and delightfully attractive; in addition there were some choice Japanese Maples, and a few Palms.

From Messrs. Geo. Paul & Son, Cheshunt, came several Tree Carnations in pots, including the bright red-coloured variety, America; Governor, deep maroon-crimson, fringed; also a few forced plants of varieties of Lilac.

The best of a very interesting collection of varieties of Lachenalia, from Mr. Moore, of the Glasnevin Botanic Gardens, Dublin, is mentioned under "Awards."

Messrs. Geo. Jackman & Son, Woking, exhibited a very pretty collection of hardy and alpine plants, which were put out in a natural fashion in rockwork. We noticed Gerbera Jamesoni, Ramondia pyrenaica, Gentiana verna, Pulmonaria mollis, Anemone pulsatilla, and the variety alba; Ranunculus amplexicaulis, &c.

Messrs. T. S. Ware, Ltd. (1902), Feltham, exhibited hardy plants in pots, including Shortia galacifolia, Narcissus, Primula frondosa, P. Sieboldi varieties, P. verticillata, Fritillarias, &c.

Messrs. Wallace & Co., Kilnfield Gardens, Colchester, exhibited groups of a few species of hardy plants, as Fritillaria citrina, a greenish-yellow species, growing about 5 inches high; the pretty new F. askhabadensis, Crocus aureus, C. Tommasinianus, Iris reticulata, Galanthus Ikariæ, Hepaticas, Hyacinthus azureus, &c.

Messrs. B. S. Williams & Son, Upper Holloway, London, N., showed a floor group, consisting of Palms and forced flowering shrubs, Cœlogyne cristata var. hololeuca, Azalea mollis in variety, Lilac Charles X., L. virginalis alba, very pretty, densely flowered, but whether this is a peculiarity of the variety, or due to the previous treatment of the plant, we do not know.

Messrs. John Peed & Son, Nurseries, West Norwood, S.E., filled a table at the end of the hall with a mixed collection of plants in season, and others that had been forced, such as Prunus triloba, Azalea mollis, Syringas (Lilac) in variety, Clivia miniata varieties, Orchids, chiefly Odontoglossums and Cypripediums, including C. bellatulum Vannerianum and C. Lathamianum; besides these was a quantity of Dracænas in variety, and other foliage plants.

Mr. Maurice Prichard, nurseryman, Christchurch, exhibited a quantity of alpines grouped together in

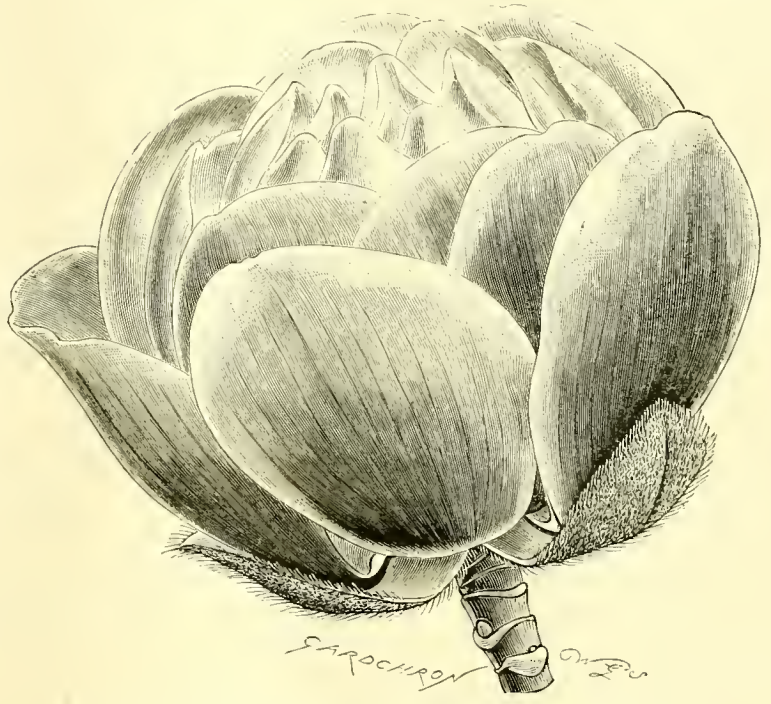


Fig. 73.—Magnolia campbelli.

Awarded the Royal Horticultural Society's First-class Certificate on Tuesday last.

Richardia Childsiana, shown by Messrs. de Graaff Brothers, Leiden, Holland, appeared to resemble very closely the common R. africana, the base of the leaves were broader, but the spathes possessed no apparent difference.

Mr. Robert Sydenham, Tenby Street, Birmingham, again showed plants growing in his preparation of fibre.

Some useful and pretty vases for containing cut flowers were shown by Messrs. Jas. Green & Nephew, 107, Queen Victoria Street, London, E.C. They are known as the "Munstead" flower glasses.

Mr. John May, Gordon Nursery, St. Margarets, Twickenham, showed an excellent lot of Cyclamen grandiflorum of all known shades and colours, having in many instances very large blooms and good dwarf foliage (Silver Flora Medal).

Messr. Barr & Sons, 11, 12, and 13, King Street, Covent Garden, exhibited, embedded in boxes filled with moss, plants in bloom of Scilla bifolia, Chionodoxa gigantea, C. Luciliæ, and C. sardensis, to show effect in the mass, but it was overdone, if meant to show the plants as they bloom. Among the many Narcissus shown in this stand we may specify Constellation, with white perianth and yellow corona, having a margin of an orange tint; Victoria, a trumpet variety, with papery-white perianth and bright yellow trumpet; Frilled Beauty, with perianth and trumpet of almost one tint of yellow; Shurtia galacifolia, unbroken (Darwin) Tulips in some variety, Hellebores (Lenten Lilies), Chionodoxa sardensis, beautiful in the mass as shown, &c.

three show boxes; there were Helleborus in variety, Megasea Strachyi, Wilson's blue-flowered Primula, Anemone blanda, Dentaria digitata, Campanula Balchiniana, a plant having small leaves, margined at the edge with white; Erica vulgaris aurea, with distinct reddish foliage and shoots; Saxifraga appendiculata splendens, Helleborus niger, rosy-purple petals and whitish anthers; Scopoliana Fladnickiana, pale yellow flower (Silver Banksian Medal).

Awards.

Clivia T. E. Arnold.—This variety was shown by Lady Bathurst, and was remarkable for the rich colour of the flowers, and for their bold appearance and large size (Award of Merit).

Jasminum primulinum.—Plants of this new species introduced from China were shown by Messrs. Jas. Veitch & Sons, Royal Exotic Nurseries, Chelsea. For horticultural purposes, it resembles a glorified form of Jasminum nudicaule, but possesses additional qualities of great value, being an evergreen, and flowering twice in the year. The solitary flowers are 1½ in. across, and are produced from the axils of the leaves; colour rich yellow. We hope to describe the plant more fully, and to publish an illustration in a future issue. The species has resisted 16° of frost on a north wall in Messrs. Veitch's nursery. It is said to flower sparsely in the autumn and then again in spring. The

flowers show a tendency to become semi-double. Judging from the plants shown, the plant may be less free flowering than J. nudicaule, but the presence of the leaves make it more decorative (First-class Certificate).

Lachenalia "*Ruth Lane*."—This variety was the best of a number shown by Mr. MOORE, of the Glasnevin Botanic Garden. The flowers are of large size, and are remarkable for the expansion of the corolla tube, the segments reflexing a little at the end, making the flowers more showy (Award of Merit).

Magnolia Campbelli.—Flowers of this handsome species were shown by Mr. W. E. GUMBLETON, Belgrove, Queenstown, co. Cork; and by Messrs. ROBT. VEITCH & SON, Exeter. The flowers are large, and globular in form, measuring nearly 8 inches across. We published an illustration of the species in *Gardeners' Chronicle* for January 5, 1898, prepared from a flower produced in Messrs. R. VEITCH & SON'S nursery. The petals are rich rose-pink colour on the exterior, and creamy-white inside, with marginal colour; the petals are wide and imbricate (see fig. 73). The species was first described in Sir JOSEPH HOOKER'S *Illustrations of Himalayan Plants*, accompanied by a splendid plate. Mr. GAMMIE records the flower as measuring 10 inches in diameter. A coloured figure was also given in the *Botanical Magazine*, January, 1885, tab. 6793, from a flower produced in Mr. CRAWFORD'S garden near Cork. We may add that the species is shy in blooming in most districts, especially near London, but Mr. GUMBLETON'S experience with it is more happy (see p. 170), also note upon plant blooming at Abbotsbury (p. 172).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), Norman C. Cookson, J. Gurney Fowler, J. W. Potter, De B. Crawshay, R. Brooman-White, F. Wellesley, F. A. Rebder, W. A. Bilney, H. T. Pitt, A. A. McBeau, J. Charlesworth, E. Hill, M. Gleeson, F. J. Thorne, J. W. Odell, W. Boxall, W. H. Young, H. A. Tracy, F. Sander, H. Ballantine, and W. H. White.

At this meeting, Orchids were again in the majority, a large number of groups being staged.

W. A. BILNEY, Esq., Fir Grange, Weybridge (gr., Mr. Whitlock), was awarded a Silver gilt Flora Medal for a fine group of magnificently-grown Dendrobiums, in which were five large specimens of the richly-coloured D. nobile nobilius, and good representatives of other fine varieties of the species, including the pure white D. n. virginale; also a very large number of fine hybrids of the D. × Ainsworthi splendidissima class, the best being D. A. Gwendoline, a very large white flower, tipped with rose, and with a dark centre, the whole very effectively arranged with Ferns and other foliage plants.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), secured a Silver Flora Medal for a fine group, rich in good species and varieties. The group included good forms of Odontoglossum crispum, O. × Rolfeæ, O. × Hunnewellianum, a very finely flowered selection of Dendrobium, a number of varieties of Cattleya Trianæ, forms of Epidendrum × Endresio-Wallisii, Cymbidium × Lowio-eburneum, fine Miltonia Roezlii, and its variety alba, Cypripediums, &c.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), was awarded a Silver Flora Medal for a good group, including Odontoglossum × Rolfeæ, O. × Harryano-crispum spectabile, O. Rossi-majus, O. Cervantesii, O. × Wilckeanum, a fine specimen of Cymbidium grandiflorum, with two spikes; C. eburneum, C. × eburneo-Lowianum, Lycaste × Balliæ, with six flowers; Phaius × Cooksoni, a pretty specimen of Dendrobium Kingianum, &c.

JEREMIAH COLMAN, Esq., Gatton Park (gr., Mr. W. P. Bound), staged a good group, the central plant of which was a large specimen of the pretty Dendrobium nobile "Gatton Park variety," with about 250 flowers. With it were Spathoglottis × aurco-Viellardi, Ansellia lutea, Phaius grandifolius, a fine specimen of Lælia Jongheana, and excellent varieties of Cattleya Trianæ (Silver Flora Medal).

Sir TREVOR LAWRENCE, Bart., Burford (gr., Mr. W. H. White), showed a good selection, including a grand mass of Dendrobium × Euterpe, a fine Wardianum, raised at Burford; D. × pallens, D. nobile Berkleyanum, white, tipped with pink, and with claret disc to the lip; Cattleya Trianæ Osmani, one of the oldest, and still one of the finest; and another fine C. Trianæ from the Downside collection, &c. (Silver Banksian Medal).

DE B. CRAWSHAY, Esq., Rosefield (gr., Mr. Stables), showed a small group of good Odontoglossums, which included large O. crispum, with distinct spottiog on the sepals, and a singular result of crossing a good O. crispum with the finely spotted O. c. Crawshayanum, the result being in this instance to prove a poor white crispum. Mr. Crawshay also showed varieties of O. × Adrianæ, O. triumphans rosefieldiense, and O. nevadense Crawshayanum (Silver Banksian Medal).

Messrs. CHARLESWORTH & Co., Heaton, Bradford, secured a Silver Flora Medal for a group of very fine hybrids, of which Cattleya × Enid magnifica secured the only First-class Certificate given; also fine Lælio-Cattleya × luminosa, L.-C. × Gottoiana, L.-C. × Myra "Princess," of a soft yellow colour; L. C. × Digbyano-Mossiæ, Sophro-Lælia × Psyche, dark scarlet; Cypripedium × Mauditæ, the remarkable C. × Colossus, and other good things.

Messrs. JAS. VEITCH & SONS, Chelsea, were awarded a Silver Banksian Medal for a select group, chiefly consisting of hybrid Orchids. Among those noted were pretty varieties of Epidendrum × elegantulum, E. × O'Brienianum, Dendrobium × splendidissimum Leeanum, and other Dendrobes, the most remarkable of which was the new D. × Pirene (Wiganiæ × Ainsworthi intertextum), a very pretty flower; Lælio-Cattleya × Vacuna, Zygopetalum crinitum, Cattleya citrina, &c.

Mr J. CYPHER, Cheltenham, staged a group of Dendrobiums, &c., very finely flowered, for which a Silver Banksian Medal was awarded.

Messrs. HUGH LOW & Co., Bush Hill Park, staged a group of varieties of Cattleya Trianæ, Odontoglossums, Dendrobiums, &c. (Silver Banksian Medal).

NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman), showed Phaius × Norman pulcherrimus, a distinct yellowish-cream flower, with pale rose front to the lip; Odontoglossum × Rolfeæ, Oakwood variety, a beautifully formed flower, richly coloured; and O. × crispo-Harryanum oakwoodense.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. Gilbert), showed Lælio-Cattleya × Gottoiana, "Westfield variety," a very large and well marked flower; and a cut bloom of his Cypripedium × Ville de Paris, a very large flower, with some appearance of C. insigne "Harefield variety," but with evidence also of C. villosum in its form.

Mrs. HAYWOOD, Woodhatch, Reigate (gr., Mr. C. J. Salter), showed forms of Dendrobium × Cybele nobillus, D. × melanodiscus Salteri, &c.

J. RUTHERFORD, Esq., M.P., Blackburn (gr., Mr. Lupton), again showed the beautiful Odontoglossum × Queen Alexandra (excellens × triumphaos), for which he received an Award of Merit at the last Temple Show.

R. I. MEASURES, Esq., Camberwell (gr., Mr. Smith), sent Cypripedium × villexul (villosum × exul), a pretty flower, well intermediate in character, and with the colouring and glossy surface of C. exul.

J. FOSTER ALCOCK, Esq., Northchurch, showed Cypripedium insigne, "Mrs. Brown."

Messrs. DE GRAAFF BROS., Leiden, sent cut examples of Habenaria Bonatea (Bonatea speciosa).

C. J. LUCAS, Esq., Waruham Court (gr., Mr. Duncan), sent Cypripedium × Chapmani, Arddarrock variety.

M. FLORENT CLAES, Brussels, showed two good forms of Odontoglossum × loochristyense; a very dark coloured O. × Adrianæ, and a light one with pale yellow ground colour.

Mr. JAS. DOUGLAS, Edenside, Great Bookham, showed Dendrobium × Florence (nobile album × Bensonæ), a pretty, white variety with dark purple base to the lip.

Mr. A. J. KEELING, showed Hybrid Cypripediums, &c.

Awards.

FIRST CLASS CERTIFICATE.

Cattleya × *Enid magnifica*, from Messrs. CHARLESWORTH & Co., Heaton, Bradford.—A large, beautiful, and floriferous cross between C. Warscewiczii and C. Mossiæ, and well blending the best features of these two fine species. The flower of C. × Enid is of fine proportions, the sepals and petals of a warm rosy-lilac, the front of the large and exquisitely frilled lip ruby-crimson, with a well-defined lavender coloured margin.

AWARDS OF MERIT.

Dendrobium × *Thwaitesiæ* (splendidissimum grandiflorum × Wiganiæ), from R. G. THWAITES, Esq., Streatham (gr., Mr. J. M. Black).—A very distinct cross, in which the influence of the yellow colour of D. signatum, through D. × Wiganiæ, effectively appears. The flowers are large and well formed, of a yellowish-cream tint with a slight purplish hue; the disc of the lip being claret coloured. It is a free grower, the pseudo-bulbs being over 3 feet long, and the flowering one well furnished with flowers.

Odontoglossum Rossii, Low's variety, from Messrs. HUGH LOW & Co.—A colour-suppression on the sepals leaves the marking on those segments, and also on the bases of the petals, of a pale green tint, instead of the ordinary purplish colour. The lip is pure white, as are also the blades of the petals.

BOTANICAL CERTIFICATE.

Bulbophyllum occultum, from H. T. PITT, Esq. (gr., Mr. Thurgood).—The singular species with purplish flowers with large bracts forming a triangular head; and remarked upon in the *Gardeners' Chronicle*, February 28, p. 130.

CULTURAL COMMENDATION.

To Mr. Thurgood, gr. to H. T. PITT, Esq., for a splendid plant of the fine old Dendrobium aggregatum majus, with about a score of fine spikes of orange-yellow flowers.

To the ROYAL BOTANIC SOCIETY, Regent's Park (gr., Mr. E. F. Hawes), for a very large and well-flowered specimen of Cœlogyne cristata.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq., Chairman; and Messrs. W. Poupart, Jos. Cheal, S. Mortimer, A. Dean, Ed. Beckett, H. J. Wright, Geo. Keif, H. Markham, G. H. Maycock, J. Jaques, Geo. Reynolds, F. Q. Lane, R. Parker, G. Wythes, Jas. H. Veitch, A. H. Pearson, J. Willard, and Owen Thomas.

The exhibits before this Committee consisted only of a sample of Kale from F. A. BEVAN, Esq.; and an unnamed Apple from W. ROBINSON, Esq., Gravetye, Sussex (gr., Mr. H. Kempshall).

Narcissus Committee.

The NARCISSUS COMMITTEE met for the first time this season, but there were not many novelties for consideration.

Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, N., exhibited a representative collection of forced Narcissus. There were upwards of forty varieties, each represented by five pots of bulbs. The varieties included some of most of the sections, from Telamonius plenus to N. poeticus grandiflorus and King Edward VII. The Leedsii varieties as Amabilis, the Barrii section as Maurice Vilmorin, Nelsoni varieties, &c., being represented, the group possessed very considerable variety (Silver Flora Medal).

DEVON & EXETER GARDENERS'.

MARCH 4.—Mr. Geo. Merritt, gr. to Mr. R. B. Ashby, Matford House, Exeter, gave an excellent lecture upon Orchids at the fortnightly meeting held on the above date. He contended that the Orchid was not necessarily a rich man's plant, but might be successfully cultivated by anyone having a heated glasshouse in which to grow them, and some slight provision, such as a partition to check extremes of temperature, and to retain moisture in the air. Among those recommended were Cœlogyne cristata, Cypripedium insigne, C. barbatum, C. Spicerianum, C. villosum, C. Harrisianum, Lycaste Skinnerl, which lasted a long time; Dendrobium aromatica, D. nobile, cheap to buy, and easy to manage; D. Wardianum, Odontoglossum grande, O. Alexandræ, O. bictonense, O. cirrhosum, Cattleya labiata, Lælia anceps, Brassia verrucosa, Oncidium flexuosum, Epidendrum Veitchianum, Zygopetalum intermedia, and other well-known species. Terrestrial Orchids, such as Calanthes, Lycastes, Phaius, and Cypripediums, require the admixture of peat, a little loam, and leaf-mould; and flower-pots filled to the extent of three-fourths with clean crocks, and over these a layer of fresh moss. In regard to temperature, the lecturer said that more Orchids are lost through excessive heat than from cold. Most of the Orchids named above stand a temperature of 45° without injury.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 5.—Lady BRUNNER, Druid's Cross, Wavertree, exhibited a good form of Cattleya Trianæ var. "Lady Brunner" (Award of Merit).

Messrs. HUGH LOW & Co., Enfield, exhibited a good form of Dendrobium nobile var. virginale.

H. PARTINGTON, Esq., Glossop, sent two Odontoglossums, O. × Adrianæ and O. × Andersonianum.

W. DUCKWORTH, Esq., Flexton (gr., Mr. Tindall), exhibited a good group of Dendrobiums, for which a Silver Medal was awarded. There were several good plants in this group, the best being Dendrobium × "D'Alroy Salamon" (prov. named). The parentage of this hybrid is not at present known, it is much in the way of D. × intertextum, but the lip is of great size, and has a very dark centre; a First-class Certificate was

awarded. D. nobile var. Burfordiense and D. × Cybele, Oakwood variety, were given Awards of Merit.

Messrs. James Cypher & Sons, Cheltenham, staged a choice collection of plants, Dendrobium × spendidissimum var. albens and Cattleya Trianæ var. triumphans, were voted Awards of Merit (Silver Medal).

O. O. Wrigley, Esq., Bury (gr., Mr. Rogers), received a Silver Medal for a group which consisted principally of Cypripediums and Dendrobium Wardianum.

S. Gratrix, Esq., Whalley Range (gr., Mr. Cypher), exhibited among other plants, Cypripedium × beechense, C. × Cardosianum, and Odontoglossum × Amelia, received Awards of Merit.

W. Thompson, Esq., Stone, Staffs (gr., Mr. Stevens), staged a very distinct form of Odontoglossum × Harryano-crispum var. albens; this is possibly one of the most distinct forms yet seen, and is remarkable for the general pallor of the flower, the markings being very sparse. A fine pan of Dendrobium Kingianum with about thirty flower-spikes, was given an Award of Merit and a Cultural Certificate; Cypripedium × Miss Fowler, C. insigne var. Chantini × C. Chamberlainianum, received an Award of Merit.

Messrs. Sander & Co., St. Albans, staged several good Cattleyas, Phaius, and Cypripedes, &c, &c. (Bronze Medal).

Mr. A. J. Keeling, Westgate Hill, near Bradford, exhibited a good plant of Cirrhopetalum picturatum (Award of Merit).

Mr. S. Allen, Sale, staged a group of plants containing a number of well flowered Dendrobiums, Cypripediums, Lycastes, &c. (Bronze Medal). *P. W.*

CHESTER PAXTON.

Bottled fruits formed the subject of an interesting and instructive lecture delivered at the Grosvenor Museum, on Saturday, by Mr. John Weaver, of Christleton. In his introductory remarks, Mr. Weaver said this was by no means a new idea, as books tell us that it was largely practised by the ancient Egyptians, and he presumed had been in fairly common use ever since. He, however, contended that much more might be done at the present time in the way of "bottling," or more correctly speaking "sterilizing," fruits of all kinds, as the means of doing so were within the reach of all. If this were more largely adopted, there would be a less likelihood of the summer markets being glutted, and consumers would be ensured of supplies of fresh fruit at all seasons of the year. He proceeded to give detailed particulars of the methods which should be adopted to ensure success; and illustrated his remarks by a collection of carefully sterilized fruits in bottles, which consisted of Plums, Nectarines, Gooseberries, Raspberries, Red and Black Currants, Mulberries, &c., all of which appeared to be in perfect condition, although some were over two years old. For dietetic purposes, he said, there was no comparison between fruits sterilized in this way, and fruits preserved in tins, either with or without sugar.

Mr. H. G. Little, who presided, gave some interesting particulars as to imported fruits.

UNITED HORTICULTURAL PROVIDENT AND BENEFIT.

March 9.—The annual meeting of this Society took place at the Caledonian Hotel, Adelphi, on the above date, Mr. John Green, Norfolk Nursery, Dereham, presiding over a fair attendance. Evidently, the members are perfectly satisfied with the way in which the Society is conducted by the Committee, and show their confidence by their absence on such occasions. The solvency of the Institution is shown by a remark from Mr. W. Gunner, one of the auditors, that were the funds of this Society shared out, the amount which each member would receive would astonish other benefit societies, and be a highly favourable one. The Annual Report shows that ninety-three new members were admitted during the past year, which brought the roll up to 997; from death and other causes there had been a loss of 31 members. Financially the Society is in a very flourishing condition. During the year the sum of £324 6*s*. 8*d* had been paid in respect of withdrawals and monies paid to deceased members. Sick pay amounted to £291 18*s*. only, a less sum than in the previous year, the balance in the hands of the treasurer on the receipts and expenditure for the year being £147 6*s*. 1*d*. The accounts of the Benefit, the Benevolent, the voluntary Convalescent, and the Management Fund, are set forth in detail in the balance-sheet; and one pleasing item in the accounts of the Benevolent Fund is that the subscriptions from honorary members realised £32 19*s*., in addition to donations amounting to £26 15*s*. In further proof of the financial prosperity of the Society, the sum of £1,630 had been invested during the year, bringing the total invested funds of the Society up to £20,600. Eight deaths had occurred during the year, the largest number on record; but as the members who joined in the early days of the Society advance in age, the death-rate is pretty certain to grow.

In moving the adoption of the report and balance-sheet, the Chairman dwelt on their satisfactory character, and expatiated on the growth of the Society since its establishment in 1860, and especially during the past twenty five years. The motto of the Society was "Union is Strength," and they had shown the truth of it by working together harmoniously and successfully for the good of all. One valuable principle of the Society was that the members were able to make some provision for old age. For a gardener, he knew no Society likely to be so beneficial to him as the one in whose interests they were met that night, and he attributed much of the success they had gained to the cordial good feeling existing, and the business capacity shown by the Officers and Committee. They were under a great obligation to the Horticultural Press, for the publicity the various journals were in the habit of giving to their proceedings. Considering the large number of gardeners about the country, the Chairman thought the number they had reached, viz., 997, was very small; they should have a membership of 2,000 at least, and even more. He thought the rules of the Society were pattern ones, for the Society was an investing as well as a benefit one, and if a member ceased to be connected with the Society, he could be paid the money standing against his name, and not lose it as is the case in some other benefit Societies. The Benevolent Fund and the Convalesent Fund, the latter especially, were the most valuable. After further setting forth the advantages accruing to young gardeners from joining this Society, the Chairman concluned by stating that very much of the success of the Society was due to their excellent Treasurer, Mr. J. Hudson, and their painstaking Secretary, Mr. W. Collins, and the Committee.

Mr. A. J. Brown, Chertsey, seconded the motion, and in the course of a forcible address he threw out some excellent suggestions which will be considered in due course. It was resolved that 300 copies of the report and balance-sheet should be printed for circulation; and steps taken as is customary to enlist the co-operation of head gardeners in bringing before the young men under them the advantages held out to them by the Society. Hearty votes of thanks were passed to the Trustees, Messrs. Geo. and J. Wheeler, and Riley Scott; also to the Treasurer, Mr. J. Hudson, who met with a very cordial reception on rising to respond, and stated he had been Treasurer for the space of twenty-one years. Mr. W. Collins was re-elected Secretary, and thanked, this being the completion of sixteen years of service. The outgoing members of the Committee were re elected; and Mr. C. H. Curtis, as Chairman, thanked for his services.

A meeting of the Committee was held on the same date. Thirteen new members were elected. Ten members were reported on the sick fund. A cheque for £30 7*s*. was granted to a lapsed member, being the amount standing to his credit in the ledger, and having attained the age of sixty years, is entitled to the same by rule. The sum of £1 10*s*. was granted to a sick member from the convalescent fund.

THE HORTICULTURAL CLUB.

March 10.—The usual monthly dinner of this Club was held on the above date at the Hotel Windsor. Mr. Harry Veitch presided, and some fifty members and friends attended. Mr. Pickstone, who for a long time has supervised the various fruit plantations established at the Cape by the late Mr. Cecil Rhodes, was the guest of the evening, and gave a most interesting and instructive address. On his arrival in Cape Colony he found that for more than a century fruit-culture had been carried on exclusively by the Dutch, and despite the fact of long-continued occupation by the British, they did absolutely nothing in that direction. Mr. Pickstone, indeed, found himself to be the first and solitary pioneer in the cult on that ground. Mr. Cecil Rhodes, with his usual forethought and consideration for the future of South Africa, devoted his attention to fruit-culture as being the particular branch which was recognised as employing more men, in comparison with area, than any other; and he consequently availed himself of Mr. Pickstone's experience by engaging him to acquire, in the first place, a considerable number of farms; and in the second, the suitable orchard trees. The Dutch industry at that time had greatly deteriorated, and the area under fruit cultivation was very small. The sorts grown were also of the most heterogenous description, so that Mr. Pickstone found it impossible to obtain the necessary stock on the spot, two or three of a sort being alone available. Owing to climatal conditions, he found that deciduous fruit-culture was limited almost entirely to the vicinity of Table Mountain, since it was only in that limited region that there were winter rains. Elsewhere there were only summer rains, and the general temperatures were such that fruit-trees obtained no rest, and were consequently a prey to all kinds of fungoid and insect pests. Irrigation being practically non-existent, formed also a bar to extended fruit culture, but this difficulty Mr. Pickstone surmounted by constant surface tillage, owing to which he found it practicable to establish orchards where the local farmers predicted the impossibility of so doing. Wind storms of intense violence, however, are of not infrequent occurrence, and though these may be guarded against in various ways, the granitic gravelly soil is of such a loose nature, that the blasts lift it and drive it sand-blast fashion with such force, that the trees are eroded to the very pith, and killed outright. To remedy this, the adjacent land was put under Oats, but a storm supervening after reaping, actually blew the retaining stubble out of the ground, and thus destroyed the trees a second time, when the task in that locality was abandoned. Many of the choice English Apples will not thrive in South Africa, but a few of the American ones do well. Many of the choicer kinds of Pears, however, grow to perfection; and some of the Japanese Plums do better than anywhere else, even than in Japan. The lack of flavour in Cape fruits was referred to, and admitted to a large extent by Mr. Pickstone, but he pointed out that the fruit-growing industry there was still young, and stated that he was quite sure that with continued and systematic selection, this fault would be rectified. A possible glutting of the markets by over-production, if the cultivated area under fruit were constantly extended, he also admitted, subject to the reservation that there was always room for the best, so that with high-class fruit and careful packing on systematic lines, fruit-growing may be relied upon to pay. Careful supervision and guidance were, however, essential to avoid the risk indicated.

An animated discussion followed the speech, in which Messrs. Pearson, Engleheart, Bunyard, Browne, Paul, Druery, H. Veitch, and others took part. Space precludes further details of this interesting contribution to our knowledge of Cape conditions, which will however appear *in extenso* in the *Journal of the Royal Horticultural Society*.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period March 1 to March 7, 1903. Height above sea-level 24 feet.

1903. March 1 to March 7.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 1	S.S.E.	44·7	41·7	48·7	35·2	0·20	42·9	45·0	45·9	23·4
Mon. 2	S.S.E.	42·5	41·7	53·1	31·3	0·35	42·0	44·5	45·9	28·0
Tues. 3	W.N.W.	43·4	41·8	47·6	42·1	0·02	42·6	44·3	45·8	39·3
Wed. 4	S.W.	45·6	43·5	51·6	33·4	0·08	42·1	44·3	45·8	20·4
Thu. 5	S.W.	46·2	44·9	47·4	45·2	0·10	44·1	44·3	45·8	40·5
Fri. 6	W.S.W.	38·8	36·4	49·1	33·2	0·08	43·3	44·7	45·8	22·1
Sat. 7	S.W.	42·9	41·1	45·1	36·3	0·23	42·8	44·8	45·8	28·4
Means	...	43·4	41·6	49·4	37·1	Tot 1·06	42·8	44·5	45·8	28·6

Remarks.—Wind and rain have been the prevailing features of the past week, with sunshine on one or two days.

THE WEATHER IN WEST HERTS.

The past week was the seventh warm week in succession. During this remarkably mild period there occurred only three unseasonably cold days, and but five unseasonably cold nights. On the warmest day in the week the temperature rose to 53°, and on the coldest night the exposed thermometer registered 9° of frost. At the present time the ground is at about a seasonable temperature, both at 1 and 2 feet deep. More or less rain has fallen on all but two of the last eighteen days, and to the total depth of nearly 2¾ inches. Of that amount, about 8¾ gallons of rain-water have come through the bare and turfed soil percolation gauges, both gauges being a yard square. On two days the sun shone for respectively seven and eight hours, but on an average for only one and a quarter hour a day during the rest of the week. The winds have come exclusively from some southerly or westerly point, and have been as a rule moderately strong. The amount of moisture in the air has varied considerably, but on

the whole the atmosphere has been rather humid. An Early Rivers' Peach growing on a south wall in my garden came first into blossom on the 6th, or eighteen days earlier than its average date in the previous seventeen years, and earlier than in any of those years with the exception of 1894 and 1899. *E. M., Berkhamsted. March* 10, 1903.

MARKETS.

COVENT GARDEN, March 12.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Acacias, per doz.	8 0	12 0
Adiantums, doz.	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæs, doz.	9 0	18 0
Aspidistras, doz.	18 0	36 0
Aucubas, per doz.	4 0	8 0
Azaleas, each ...	2 0	3 0
Begonia Gloire de Lorraine ...	6 0	12 0
Callas, Elliotiana, each... ...	10 6	—
per dozen ...	4 0	6 0
Cinerarias, p. dz.	6 0	10 0
Crocus, per box .	1 0	1 6
Crotons, per doz.	12 0	24 0
Cyclamens, p. doz.	6 0	18 0
Cytisus, per dozen	6 0	9 0
Daffodils, p. doz.	4 0	6 0
Dracænas, var., dz.	12 0	48 0
Ericas, per dozen	8 0	18 0
Euonymus, vars., per dozen ...	4 0	6 0
Ferns in variety, per dozen ...	4 0	30 0
Ficus elastica, doz.	9 0	24 0
Hyacinths, p. doz.	8 0	10 0
Lilac, pots, each	2 0	3 6
Lycopodiums, pr. dozen	4 0	5 0
Marguerites, doz.	5 0	8 0
Mignonette, doz.	8 0	10 0
Orange-trees, each	3 0	7 6
Palms, various, each	3 0	20 0
Pelargoniums, Scarlet	4 0	6 0
Primulas, p. doz.	4 0	—
Pteris tremula, p. dozen	4 0	8 0
— Wimsetti, doz.	4 0	8 0
— major, per dozen ...	4 0	8 0
Solanums, p. doz.	6 0	8 0
Spiræas, per doz.	6 0	8 0
Tulips, red, p. box	1 0	2 0
— white, p. box	1 0	2 0
— yellow, p. box	1 0	2 0
— all colours ...	1 0	2 0

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Anemones, per dozen bunches	1 3	2 0
Azaleas, per doz. bunches ...	2 0	4 0
mollis, bunch	1 0	—
Bouvardias, per dozen bunches	6 0	8 0
Callas, per dozen	2 0	3 0
Camellias, p. doz.	2 0	3 0
Carnations, per bunch	1 0	3 0
Chrysanthemums, per. bunch ...	1 0	2 0
Daffodils, p. doz. bunches ...	2 0	6 0
Eucharis	2 0	3 0
Ferns, Asparagus, per bunch ...	1 0	2 6
— French, per doz. bunches	0 4	0 6
— Maidenhead, doz. bunches	4 0	6 0
Freesias, per doz. bunches... ...	2 0	3 0
Gardenias, per box	4 0	6 0
Hyacinths, Roman, dozen bunches	3 0	6 0
Iris, per bunch ...	1 0	—
Lilac, White ...	2 0	4 0
Lilium album, per dozen blooms	1 6	2 6
— auratum, per bunch... ...	4 0	6 0
— longiflorum, per bunch ...	3 0	8 0
Lily of the Valley, p. doz. bunches	4 0	12 0
Marguerites, yellow, per dozen bunches ...	2 0	2 6
Mignonette, per dozen	2 0	3 0
Mimosa, per bunch	0 6	1 0
Narcissus, dozen bunches ...	1 6	3 0
Orchids: Cattleya, dozen blooms ..	12 0	15 0
— Cypripedium insigne, per dozen	2 0	3 0
— Dendrobiums, per dozen ...	2 0	3 0
— Odontoglossums, dozen	2 0	4 0
Pelargoniums, zonal, dozen bunches ...	3 0	6 0
— White... ...	3 0	6 0
Prunus, p. dozen sprays	5 0	—
Roses, Mermet ...	3 0	6 0
— various, per bunch... ...	1 0	4 0
— red, p. bunch	2 0	3 0
— white, per bunch... ...	1 0	2 0
Smilax, per dozen trails	1 6	2 6
Snowdrops, dozen bunches ...	0 9	1 6
Stocks, per dozen bunches ...	3 0	—
Tulips, all colours, per bunch ...	0 6	1 0
Violets, per dozen bunches ...	1 0	2 0
— Parma, per bunch... ...	1 0	2 0
Wallflowers, per dozen bunches.	3 0	3 8

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per sieve ...	2 0	3 6
— dessert, various, p. bush.	4 0	6 0
— culinary, Wellingtons, various cookers, per bush. ...	3 6	8 0
— Californian, cases	10 0	13 0
— American, per barrel... ...	14 0	18 0
Bananas, bunch	8 0	12 0
— loose, dozen .	1 0	1 6
Chestnuts, Italian, per bag ...	10 6	—
Cobnuts, per lb ...	0 3	—
Grapes, Almeria, per doz. lb. ...	4 0	8 0
— Alicante, lb...	2 6	3 0
— — French ...	1 3	1 6
— Colman, A., lb.	2 6	3 0
— — B., per lb.	1 3	1 9
Lemons, per case	9 0	13 0
Lychees, packet .	1 0	—
Oranges, case ...	9 0	14 0
— Bitter... ...	7 0	—
— Tangierines...	1 3	1 6
Pines, each ...	2 0	4 0
Strawberries, A., per lb. ...	8 0	10 0
— B., per lb. ...	2 0	5 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen ...	2 0	3 0
— Jerusalem, p. sieve	0 9	1 0
Asparagus, sprue, per bundle ...	0 9	1 0
— Paris Green...	6 0	—
— English, per bundle ...	7 0	7 6
Beans, dwarf, lb.	1 6	—
— Channel Is. lb.	1 6	—
— Madeira, bkt.	2 0	3 0
Beetroots, bushel	1 0	1 3
Brussels Sprouts, per sieve ...	0 6	1 0
Cabbages, per bag	1 0	1 6
Carrots, doz. bun.	1 6	2 0
— bag (washed).	1 6	2 6
Cauliflowers, doz.	1 0	2 0
— Italian, bkt.	2 0	3 0
Celeriac, per doz.	2 6	—
Celery, per dozen bundles ...	4 0	10 0
Chicory, per lb....	0 2	0 2½
Cress, per dozen punnets... ...	1 3	—
Cucumbers, doz.	4 0	6 0
Endive, per doz.	1 6	—
Garlic, per lb. ...	0 4	—
Horseradish, foreign, p. bunch	1 3	1 8
Leeks, per dozen bunches... ...	1 0	1 6
Lettuces, Cabbage, per dozen ...	0 10	1 0
Mint, dozen bun.	3 0	4 0
Mushrooms, house, per lb.	0 8	0 9
Onions, per bag...	3 6	4 6
— English, per cwt.	5 0	—
— foreign, case.	6 0	6 6
— picklers, per sieve	2 6	3 0
Parsley, per doz. bunches ...	1 6	2 0
— sieve	0 9	1 0
Parsnips, per bag	1 0	1 6
Potatos, per ton	7 0	110 0
— New Teneriffe, per cwt. ...	10 0	12 0
— New, Kidney, Frame, p. lb.	0 4½	0 5
Rhubarb, Yorks., — outdoor ...	1 6	2 6
per doz.... ...	0 9	1 0
Salad, small, punnets, per doz....	1 3	—
Savoys, per tally.	2 6	4 0
Seakale, per doz. punnets... ...	12 0	15 0
Shallots, per doz.	0 2	—
Spinach, per bushel	2 6	—
Tomatos, Canary, deeps	2 6	4 6
Turnips, p. dozen	1 6	2 0
— bags	1 0	2 0
Watercress, per dozen bunches.	0 6	—

REMARKS.—At the corresponding time last year Cobnuts were worth 1*s.* per lb., as against 3*d.* this year. Cape fruits, viz., Nectarines fetch 4*s.* to 7*s.*; Peaches, 5*s.* to 10*s.*; Plums, 4*s.* to 7*s.*; Pears, 2*s.* 6*d.* to 6*s.*; Grapes, 10*s.* per case; Chicory fetches 3*d.* to 3½*d.* per lb.

POTATOS.

Various samples, 70*s.* to 90*s.* per ton; Dunbars, red soil, 105*s.* to 110*s.* Seed Potatos in variety, prices on application. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

WILLIAMS' MEMORIAL FUND.—At a meeting of the Williams' Memorial Trustees held recently, Dr. MASTERS in the Chair, it was decided to offer two Medals for competition at the British Fruit and Vegetable Show at Chiswick to be held in September next. It was also resolved to subscribe the sum of £10 to the funds of the new Horticultural Hall.

ANSWERS TO CORRESPONDENTS.

ADDRESS, WM. WHITMAN BAILEY: *M. Buysman.* Professor of Botany in Brown University, 6, Cushing Street, Providence, Rhode Island, U.S.A.

BOOKS: *A. B.* Mr. Upcott Gill, *Bazaar* Office, Drury Lane, W.C., would supply you with a manual on surveying, upon your stating your wants to him; price trifling in amount.

CROCUSES GROWING IN FRAMES: *C. W. D.* The plants are attacked by Botrytis cinerea, and numerous Sclerotia are present in the cornfibres. There is also a quantity of the Eucharismite in the rotten corms. Nothing short of removing every particle of soil from the compartment, and disinfecting, will check the spread of the disease to the remainder of the Crocuses.

DENDROBIUMS WITH SPOTTED LEAVES: *W. P., Northampton.* Such an unhealthy condition in deciduous Dendrobiums is often brought about by their being given too little heat and moisture when growing, and too much when they should be at rest. As it is, the best thing to do would be to cut away all the back pseudobulbs affected and burn them. Remove all bad leaves, and place the plants in a warm, moist house. When the new growths are completed, rest them in a dry, airy greenhouse or fruit-house. Cut the bad pseudo-bulbs off close down to the rhizome; they are of no use on the plants.

GRAPES HANGING TILL THE MONTHS OF NOVEMBER AND DECEMBER: *W. R. B. L.* No harm to either the Grapes or the Vines will result if the border be kept in a fairly moist condition, and a thick coating of hay or clean straw be put over the entire surface.

HYACINTH BULBS: *H.* The bulbs have evidently been imperfectly dried before storing. This has led to their being attacked by Cladosporium and other fungi, which have destroyed most of the roots. *G. M.*

INSECT OR SCALE, &c.: *Young Gardener.* The round bright red objects in the fork of the Apple-twig are the eggs of a species of Bryobia belonging to the Harvest Mites (Trombidiidæ). They are often extremely abundant on various kinds of fruit-trees, and sometimes occur in such numbers as to almost cover the bark of the tree. A dressing of lime and sulphur would destroy them. Gouty twigs of the Gooseberry: this is a physiological malformation.

KALANCHOE FLAMMEA WITH IMPERFECT GROWTH: *W. A. A.* The house in which the plants were kept being too cold and damp, would, as you suggest, cause the imperfect development seen in the specimens sent.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*N. W. O.* Helxine Soleiroli.—*Cannes.* 1, Acacia longifolia; 2, Euryops virgineus.—*Alva.* 1, Codiæum (or Croton) Johannis; 2, C. variegatum; 3, C. angustifolium maculatum; 4, Adiantum hispidulum; 5, Selaginella viticulosa; 6, Cymbidium eburneum.—*C. H.* Sprekelia formosissima, often called Amaryllis.—*Vernon.* 1, Cypripedium villosum; 2, Cypripedium × Harrisianum; 3, Odontoglossum × Coradinei.—*G. R.* 1, Codiæum angustifo'ium; 2, C. volutum; 3, C. chrysophyllum; 4, C. irregulare; 5, C. trilobum; 6, C. Queen Victoria. All these are commonly called Crotons in gardens.—*W. J. G.* Heheclinium ianthinum.—*Haslemere.* 1, Anthericum lineare variegatum; 2, Abutilon Savitzii; 3, not recognisable from the scrap sent; 4, Eulalia japonica zebrina, so far as we can judge; 5, Tradescantia repens; 6, A garden-raised Begonia, impossible to identify without seeing leaves.

NATIONAL AMATEUR GARDENERS' ASSOCIATION. The Secretary of this body of amateur gardeners is Mr. T. Finch, 117, Embleton Road, Lewisham; and not Mr. A. J. Foster, as we inadvertently stated in last week's *Gardeners' Chronicle.*

PAYMENT FOR REMOVAL: *W. J.* The employer is not bound to reimburse the gardener the cost of the removal of his household goods, unless there exists a written agreement to that effect.

RHODODENDRONS: *W. R. B. L.* The plants are weakened by being allowed to carry numerous seed-vessels. Take them as soon as the blooms are over.

COMMUNICATIONS RECEIVED.—A. B. R.—Rand Nurseries, Johannesburg—W. C. L.—A. G. S.—Rev. G. B.—Prof. Henriques—W. T. T. D.—A. D. H—A. E. T. R. (a letter will follow)—W. R.—J G.—H. W. W.—J. S.—J. H.—Dr. A. B. R.—R. D.—B. E. G. B.—T. H.—M. F.—P. H. R.—R. G. W.—F. B.—J. C. W.—C. W. W.

CATALOGUES RECEIVED.

FARM SEEDS.

COOPER, TABER & Co., Ltd., 90 and 92, Southwark Street, London, S.E., and Witham, Essex—Wholesale.

KENT & BAYDEN, Darlington.

FOREIGN.

SOUPERT & NOTTING, Luxembourg—New Roses.

WALTER SIEHE, Hortus Orientalis, Mersina, Turkey-in-Asia—New Snowdrops, Irises, and other rare hardy flowering plants.

GARDENING APPOINTMENTS.

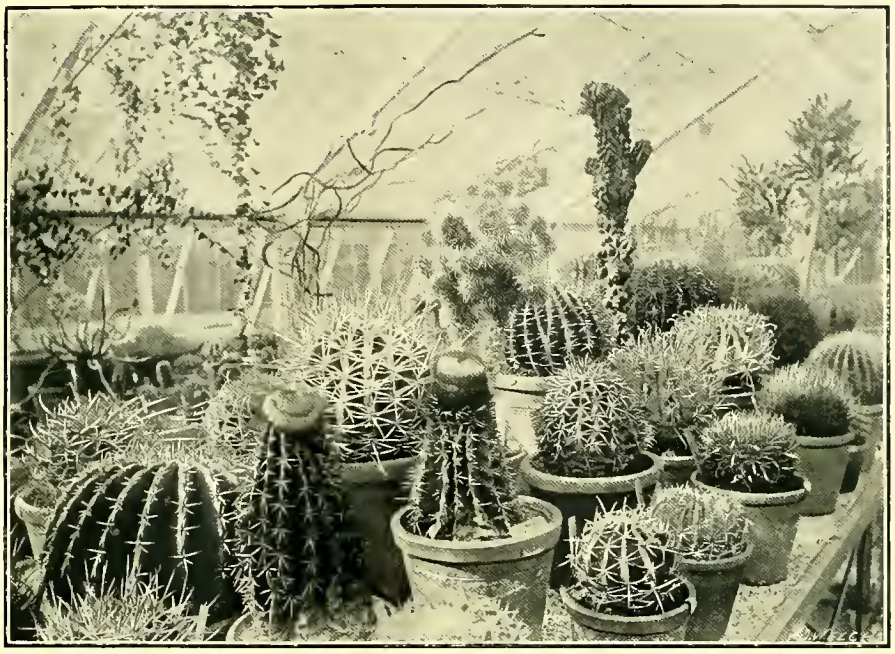
MR. JOHN BARR, until recently Gardener at Gribton, Dumfries, as Head Gardener to JAMES COWAN, Esq., Ross Hall, Paisley.

Mr. G. H. COLE, until recently Head Gardener and Orchid Grower at Arddarroch, Garelochhead, as Head Gardener and Estate Manager to C. E. ALLAN, Esq., Stormont Castle, Belfast.

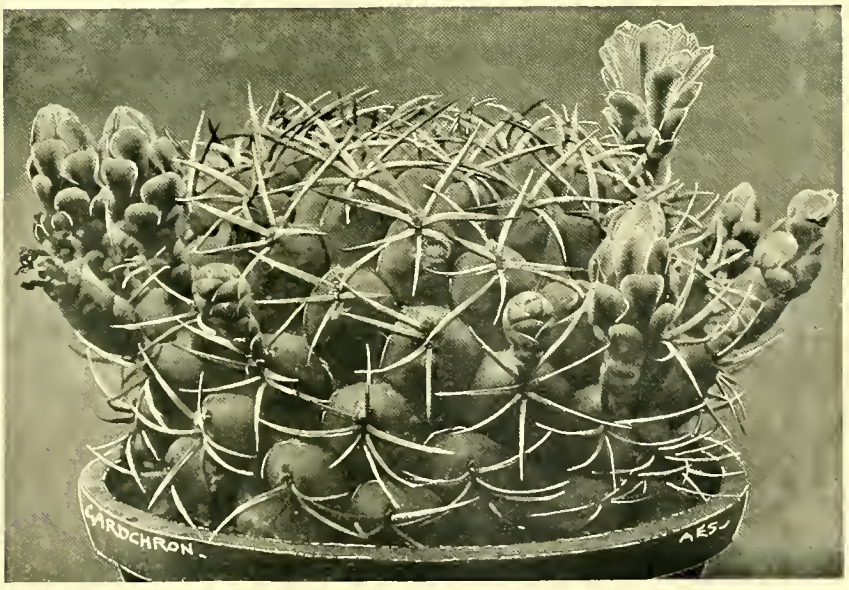
Mr. A. MITCHELL, for the past nine years Head Gardener at Copse Hill, Bourton-on-Water, as Head Gardener to the Right Hon. Lord SHERBORNE, Sherborne Park, Northleach, R.S.O., Glos. He will enter upon his duties on March 25.

Mr. W. DOWSETT, for the past two and a half years Head Gardener at Charlwood Park, Horley, Surrey, as Head Gardener to R. E. CAMPBELL, Esq., at the same address.

Mr. ALFRED SIMESON, late Foreman at Cheveley Park, as Head Gardener to WALTER BODEN, Esq., The Pastures, Derby.



Echinocactus and Melocactus at Holly Point, Heaton Mersey.



Echinocactus Delaeti from M. Frantz de Laet, "Kakteenspecialist," Contich, Belgium.

Bradbury, Agnew & Co., Ld., Printers, London and Tonbridge.

THE
Gardeners' Chronicle

No. 847.—SATURDAY, MARCH 21, 1903.

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THE NARCISSUS.

THE Narcissus is one of the most classical of flowers, its glory having been sung by Homer, Sophocles, Shakespeare, and Wordsworth, in imperishable strains. It seems to have inspired the great poets of all ages with imagery of the most beautiful and memorable kind. The immortal tribute of him who has been called, not without expressiveness, "the High Priest of Nature," to the queen of vernal flowers, is simplicity itself; yet who that has ever read them can forget such exquisite lines as these:

> "They flash upon that inward eye,
> Which is the bliss of Solitude."

Nor is the Narcissus, in any of its manifold forms, an exacting plant in the matter of adequate culture; for the humblest cottar who has the smallest allotment of good garden ground can grow it grandly there. It is a great pity, for the sake at least of such poor yet earnest cultivators, that certain varieties of great beauty, such as the Weardale Perfection, and others of even more recent introduction, whose attributes need not be characterised here, are so prohibitive in their prices; but those who are not affluent, and cannot therefore indulge in such expensive floral luxuries, have the consolation of knowing that other forms, of almost equal impressiveness, and what is of great importance, of easier cultivation, are quite within their reach. Few flowers, for example, are more beautiful than the "Scottish Garland Lily," with its pale primrose perianth, and artistically-serrated golden trumpet, which, naturalised in grass, luxuriates here. It always seems to me to be a greatly-improved version of the English Lent Lily, which blooms contemporaneously. Either of these, though very accommodating when compared with other

FIG. 74.—"SIR WATKIN" DAFFODIL. (SEE P. 178.)

varieties, succeeds much better when planted in fibrous, mossy soil, under trees, than in garden soil.

Of all Narcissi, undoubtedly the supreme favourites are the bicolor Daffodils, which for refinement of aspect and delicate beauty could not easily be surpassed. Conspicuous among these is the magnificent Weardale Perfection, to which allusion has already been incidentally made; the massive and splendidly-formed Empress, which is hardly less commanding, while it is much more accessible; Grandis, a late-flowering bicolor, worthy of the name; Victoria, a grand form (introduced by the Messrs. Barr, of Covent Garden), with creamy-white perianth, which I have seen at their nurseries, exceptionally fine; the uniquely-coloured Apricot, and the venerable Horsfieldi, which still retains much of its primal popularity.

Hardly inferior to these in artistic attractiveness are such pure yellow varieties as the almost incomparable Emperor, which I have always regarded as a very close approximation to floral perfection; Ard Righ, a very early flowering introduction, of Irish origin; Alvarez, which has well been described as a miniature Emperor, with much of the refinement of the latter imperial flower; Glory of Leiden, one of the grandest of this section; Johnstoni Queen of Spain, an extremely interesting and attractive flower, which, however, I have not found very easy of culture, not being able, manifestly, to provide for this beauty a congenial soil; Monarch, Lady Helen Vincent, Maximus, and Golden Spur.

All the various forms of Narcissus incomparabilis, and especially such representatives as C. J. Backhouse (with rich yellow perianth and orange-scarlet cup), Gloria Mundi, Mary Anderson, Queen Sophia, Frank Miles, the great Sir Watkin, and Princess Mary, are highly interesting; so also are Narcissus Barrii and Leedsii, of which beautiful sections the special hybrid variety entitled Barrii conspicuus remains by far the greatest and most abiding acquisition. Very fascinating are also the exquisitely fragrant Narcissus odorus, and Narcissus odorus plenus, "Queen Anne's Double Jonquil."

The classical Narcissus, a sweet native of Greece, which inspired the Homeric and the Sophoclean muse, is N. Tazetta. This is doubtless a species of considerable beauty, with its splendid fragrance (almost too pronounced), and its clustering, miniature flowers; but much superior to this renowned plant is Narcissus poeticus, of which the finest form is Narcissus p. poetarum. No flower could possibly be more perfect than this. *David R. Williamson.*

"SIR WATKIN" DAFFODIL.

THIS truly "incomparable" Daffodil (fig. 74) when first exhibited in 1884 as "James Dickson" caused a deep impression, not only among the small band composing what some one in a happy moment designated "The Narcissus Cult," but also among flower-lovers generally. When highly cultivated it still maintains a position of the first rank, not alone as a garden plant, but also for forcing; and on grass none of its congeners surpass it. It will be remembered that the name was almost immediately altered on the suggestion of the reputed raiser, from James Dickson to Sir Watkin. It is not my purpose to follow the slow but sure process by which, in the course of some ten years, the history of the new Daffodil was elucidated. As a not uncommon variety in Merionethshire, Messrs. Dickson, of Chester, procured from various parts of that county in the space of two years some 23,000 flowering bulbs, for which, it was said, about £1,000 was paid. Thence it was traced to Bideford, where the bulbs that in time stocked the above county were derived, in the beginning of last century, and where as a living plant all trace of it is lost. The engraving at p. 484 of Hill's *Eden* (1757) carried the history of the plant downward a bit further, and with one exception, I believe no one has ever suggested that the Daffodil referred to in that book was other than Sir Watkin of to-day. It was thence an easy leap to Parkinson, the engraving in this case being less true to the character of the flower; but the description, on the other hand, tallies in a remarkable manner, with one or two exceptions only, which will be mentioned presently. Parkinson's figure was traced finally to the *Hortus Floridus* of Crispin de Passe (1614).

One of the exceptions in Parkinson's description is the remark, "The flower hath little or no scent at all," when as a matter of fact it is so sweet-scented, that on that account alone Narcissus biflorus has been suggested as one of its parents. The other exception is that "This doth sometimes bring forth a flower with ten or twelve leaves, and a cup much larger, as it would be two even as the flower seemeth." I have cultivated the plant somewhat extensively, and do not remember ever to have seen a flower of the above type. Parkinson was unaware whence this Daffodil was derived, but its French name, "Nonpareille," under which it was received, suggests a continental origin. The same variety is described in Johnson's edition of Gerarde's *Herbal;* and he gives a figure with the remark, "it is somewhat too little." He might have added the figure had been previously employed by Clusius to illustrate a novelty sent him in 1601, the outer segments of which were pure white. It is also described by Rea, who adds he had cultivated for a long time a double variety, which he had received many years previously from Paris "by the name of the 'donble Nonpareil Daffodil,' as in truth it is." From the description, this seems to have been the well-known "Butter-and-Eggs," and Gilbert, who mentions both, says the latter forms "a large and beautiful flower, it being a pity 'tis so great an increaser!" Daffodils seem to have been too common during the eighteenth century to have called for any but the barest notice. However, in addition to that in Hill's *Eden*, Justice notices it in his *Scots' Gardeners' Director* (1754). Justice is an original writer, and in the chapter on Daffodils he declares he treats of no genus of plants "but of those whose culture I know by my own practise." Those he treats of are only Narcissus nanus, N. (spurius) Trumpet major, N. Telamonius plenus, N. "Butter-and-Eggs," N. Orange Phœnix, N. poeticus flore-pleno, The Nonsuch double; N. biflorus, a yellow with reflexed sepals; and the "greatest Nonpareille Daffodil" of Parkinson. I think I possess the works of all the early writers on gardening in Scotland, and no one but Justice mentions this plant. Gordon, who published in 1784, names indeed the Incomparable among a very good list of kinds. Justice is so altogether reliable, that it is somewhat strange, "Sir Watkin" and Parkinson's "Nonpareille" being identical, no trace of the first-named has been discovered in Scotland. Hill, on the other hand, is the opposite of Justice as regards reliability; but his figure corresponds so exactly with a bloom of Sir Watkin of moderate quality, while part of his description points to its identity with that of Parkinson, that one is almost forced to accept the position as it stands; at the same time admitting that variety as an old denizen of Scottish gardens. Perhaps someone could throw more light on the subject. *B.*

THE ROSARY.

FORTUNE'S DOUBLE YELLOW ROSE, ROSA FORTUNEI.

THIS variety is synonymous with Beauty of Glazenwood, a Noisette or climbling Rose, and has been shown by me on several occasions at the meetings of the Royal Horticultural Society, where it was much admired, and by many persons it was regarded as quite a novelty. No Rose with which I am acquainted flowers more freely; the colour is buff, blotched and striped with crimson, and from the gracefulness of both flowers and foliage, it is one of the most suitable in the cut state for dinner-table and other domestic decorations. Its freedom, too, from mildew and rust is remarkable, and aphides seem to be the only enemy; of which fumigation with XL-All will relieve the plants. It is a very fast and strong grower, and will live for a considerable number of years when established in good soil. There is a plant of this Rose at Lockinge which was planted about 1873, which during the last ten years has greatly increased in vigour. In all, there are six plants growing very well here under glass, in four different houses, some being planted on two sides of a house standing east and west; and in another that runs north and south, and also on the south side of a large span-roofed house running east and west, and in a ridge-and-furrow house standing north and south. The blooms that we cut number many thousands annually, cutting commencing in February, and continuing up to the end of the month of May. A suitable structure in which to cultivate Fortune's Yellow Rose is a lean-to or span-roof with a 10 or 12 feet stretch of rafter, having wires running lengthwise, and fixed at 12 inches distant from the glass, and should be about 8 inches apart. If span-roofed, the border should be on opposite sides, and separated by a path. The borders need not consist of any special compost, ordinary garden soil, with a good proportion of rather coarse sand or gravel, answering the purpose admirably. If the house be span-roofed, from 20 to 30 feet long, let one plant be planted on each side in the centre of each bed, and beneath the lowermost wire, and cut the plant back to that wire, and take two shoots and allow them to run, in the form of a double horizontal trained cordon, the entire length of the house. From these horizontal trained shoots, upright shoots will arise the second year at about 2 inches apart, which should be thinned to about 12 inches apart, and trained to the wires, the greater proportion of which will grow to a length of 8 to 10 feet when the plants are established. These upright growing shoots will produce flowering shoots the following season. When flowering is over, the upright shoots should be cut back to the horizontal, leaving one bud from which will produce other shoots in great number, which will be thinned and regulated as before. Trained in this manner, little difficulty is experienced in growing the other ordinary occupants of the houses, and slight shade afforded by the Rose-shoots are sometimes more an advantage than otherwise. That it can be cultivated with success upon its own roots some cultivators would consider an advantage, and cuttings of matured shoots root freely, with the result that Briar suckers and probable decay at the point of union are thereby avoided.

The large quantity of chalk in the soil at Lockinge may be considered by some as contributing to success in Rose-growing. Yet upon a general look round the gardens in this neighbourhood, one finds the greater portion of the Rose family in anything but a flourishing condition, the plants being devoid of vigour. Hearing, as I often do, of failures in Rose-culture, I am forced to the belief that in the training and pruning must lie the principal cause of failure. *Wm. Fyfe, gr., Lockinge, Wantage.*

FIG. 75.—BOUQUET OF TRANSVAAL ORCHIDS PRESENTED TO MRS. CHAMBERLAIN AT JOHANNESBURG, AND ARRANGED BY MR. FUCHS, RAND NURSERY, JOHANNESBURG.

(SEE P. 180.)

TRANSVAAL ORCHIDS.

OUR knowledge of the Orchids of Cape Colony and of Natal is much more complete than in the case of those of the Transvaal; and accordingly it is with pleasure that we avail ourselves of the opportunity of illustrating a bouquet (see fig. 75), largely composed of those flowers, which was made by Mr. H. Fuchs, Rand Nursery, Johannesburg, for presentation to Mrs. Chamberlain, when the Right Hon. Joseph Chamberlain visited the "Golden City." The letter of Mr. Mainwaring, manager at the Rand Nursery, informs us that the groundwork of the bouquet was of Violets, Smilax, and Fern-fronds, but Transvaal Orchids formed the chief feature. The names of the kinds used are not given, but they are most probably varieties of Eulophia Dregeana, E. ensata, and other of the chain-tubered Eulophias, whose pretty flowers are of various shades of white, pink, and yellow. The larger flowers, described in Mr. Mainwaring's letter as Phaius-like in growth, are doubtless those of Eulophia streptopetala.

The African Eulophias and Lissochili are not well understood in gardens, and, as treated, are apt to prove ungrateful subjects; therefore it will be of service to quote Mr. Mainwaring's remarks on the conditions under which they grow in a wild state. He says: "They seem to thrive best on light, stony soil, and generally on the slope towards the water; so that in the rainy season (their growing season) they are sometimes flooded, and in winter, their season of rest, they are quite dry." With regard to the Phaius-like species with pseudo-bulbs above ground, he says: "They seem to require a moister situation than the others (the chain-tubered), and a richer soil."

Calanthe sylvatica, numbers of pretty Disas, Satyriums, and other terrestrial Orchids, abound in the Transvaal, and there are also some epiphytal Orchids, such as Megaclinium Sandersoni, Angræcums, and Polystachyas. In considering their requirements under cultivation, however, it must be borne in mind that the winter the writer mentions as the Transvaal Orchids' season of rest, is the hot dry season comparable to our winter only by a similarity in the names of the months of the year during which it takes place. Therefore the resting season under cultivation must be cool and dry, for if hot and dry treatment at that season is attempted, the plants will perish.

ORCHID NOTES AND GLEANINGS.

LÆLIO-CATTLEYA × ELEGANS.

RECENT importations of Lælia purpurata, and the rarer natural hybrids of it, Lælio-Cattleya × Schilleriana and L.-C. × elegans, found growing with it, have introduced great variety into the forms of those natural hybrids now found in gardens, each different importation seeming to bring a set of varieties differing in some respects from others. Two fine varieties of L.-C. × elegans from an importation by Mr. E. Kromer are now flowering with Mr. H. A. Tracy, Amyand Park Road, Twickenham. The flowers are larger and broader in all their parts than the old forms represented by L.-C. × elegans Turneri, and of a fine tint of rose-purple colour. The labellums of these varieties are much broader, and more attractive in shape, than in the older forms.

"LINDENIA": ICONOGRAPHIE DES ORCHIDÉES.

THE seventh and eighth numbers of the seventh volume of the second series, and the seventieth volume of the work, are issued together, and the quality of the pictures and value of the letter-press are well sustained by M. Lucien Linden, its versatile founder, director, and publisher. The subjects illustrated and described are:—

CATTLEYA LODDIGESII VAR. HARRISONIÆ, SUB-VAR. JORISIANA.—Flowers as in the normal form, but with the rosy-lilac sepals and petals spotted with dark rose.

CATTLEYA TRIANÆ VAR. TRIUMPHANS.—A very beautiful flower, with light purple-tinted sepals and petals and lip of rich claret-crimson, with yellow disc.

CATTLEYA TRIANÆ VAR. MEMORIA RODIGASII.—The description of this remarkable variety, dedicated to the memory of the late Emile Rodigas, who worked so ardently to advance Belgian horticulture, and a sympathetic obituary notice is also given; but the plate of the variety is to be issued with the next number, as it could not be got ready in time for the present one. The flower is said to be of a clear yellow colour, tinted with rose, and the front of the lip reddish-cerise.

CYPRIPEDIUM LAWRENCEANUM VAR. ARDENS.—A very showy flower, with the labellum, dorsal sepal, and the tips of the petals suffused with amethyst-purple.

CYPRIPEDIUM × LEEANUM VAR. OLIVACEUM.—Flowers yellow, and upper half to the dorsal sepal white, the base of which as well as the petals are marked with olive-brown.

CYPRIPEDIUM × MISS LOUISA FOWLER.—The fine hybrid between C. Chamberlainianum and C. insigne, for which J. Gurney Fowler, Esq., received an Award of Merit at the Royal Horticultural Society, January 31, 1899. The upper sepal in this flower is of an emerald-green tint, which at the base changes to yellow towards the white margin; petals and lip tinged with rose-purple.

ODONTOGLOSSUM CRISPUM VAR. GRISELIDIS.—One of the much-sought-for blotched crispums of a high degree of merit. Flowers white, with one very large red blotch on each segment, and a few small ones round the yellow crest of the lip.

VANDA TRICOLOR TENEBROSA.—A very handsome variety with yellow sepals and petals heavily marked with reddish-brown; base of the lip and column white, front lobe bright rose with purplish lines.

NOTES FROM ISLEWORTH.

(*Concluded from p.* 116.)

HARDY FRUITS, ETC.

DURING the past season Tomatos were a failure. Pears were a good crop, and kept very well; flavour varied a great deal, some of the best

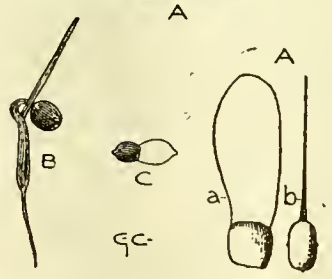

FIG. 76.

A. Acer palmatum.—One seed (*a*) flat, and (*b*) on edge. This tree flowered in May, and matured its fruit in September. Germination not yet tested.

B. Zephyranthes roseo.—Life-size seed of Z. rosea. The original process is terminated in a true root, which will not die for many months. The first true leaf is rising upwards. This is typical of Hippeastrum in all respects.

C. Agapanthus Mooreanus.—Life-size drawing. The true seed shaded; the wing not shaded.

flavoured kinds in good seasons (such as B. Bosc) falling to second-class, whereas other kinds (such as B. Brown) were much better in flavour than usual; in fact, this latter Pear was quite first-class in flavour this year, and as good as Marie Louise—which is high praise.

I had quite a failure among dessert Apples.

Among Strawberries, an interesting break occurred in this garden among a bed of Countess and Latest-of-All; the sport was isolated, and propagated, and this year bore a fine crop of large late fruit. It is the finest Strawberry I have ever tasted for flavour, melting in the mouth like a soufflée; yet it will never be of use commercially, because it is not firm enough to stand travel, and has a dull appearance. It was identified as Helen Gloede by an expert to whom fruits were sent, yet, as I have never had this Strawberry, I cannot help thinking that it must have made a spontaneous appearance in my garden either from seed or reversion.

The Plum-maggot has increased of late years on wall-trees. There is no doubt that the insect finds a lodgment in the crevices of the walls. After pointing the worst places, it is a good plan to paint the whole wall over with a boiling mixture of quicklime, oil, &c. This is cheap, expeditious, and lasts several years, filling up all the small holes and crevices.

Seedling Peaches and Nectarines should be transplanted every year until fruiting age (four years). If this is not done, the trees may be lost when lifted for planting in permanent places.

DISEASES.

"Silver leaf" in Peaches and Nectarines.—This broke out in early spring on one Nectarine under glass (for the first time in this garden). Determined to eradicate the disease, I cut out the entire branch, and sawed it up into short lengths. Here and there appeared dark marks in the sawn ends, which under the microscope appeared to be dead woody tissue. Not satisfied with this, I determined to sacrifice the entire tree, which was also sawn up into short lengths throughout. I found (1) the same dark marks in boughs as yet unaffected with any sign of "silver-leaf;" (2) that such marks extended as far down as the graft. Below this were no certain signs of dead tissue.

From these data I came to the following provisional conclusions:—

(1.) That the portions of dead tissue in the wood were either the cause or the effect of the disease.

(2.) That such disease was antecedent to the appearance of "silver-leaf," which was itself an effect of the disease.

(3.) That the disease had apparently entered or commenced at the graft.

I took the pieces of wood to the Scientific Committee of the Royal Horticultural Society on April 22, and reported my observations. Subsequently I exhibited the trunk of the tree before the Committee, who referred the matter, at my request, to Prof. Percival. His report on the matter, with observations on the organisms he recognised as connected with the manifestations of the disease, are published in the *Journal of the Royal Horticultural Society.*

Disease in Brunsvigias, and some Crinums.—Recently I have noticed that in bulbs "summered" out-of-doors a disease attacks them beneath the tunics. Softness, dampness, and rotting of the tissue occur, and the foul odours of decay are very noticeable. Among the decaying mass, small white maggots are common, and occasionally brownish-red cocoons. I think it probable that these maggots may cause the original lesion in the tissue of the plants, admitting some specific disease; if not, or perhaps in addition to such introduced disease, these organisms probably deposit ptomaines of a nature deadly to the tissue. I have never found them except in association with active disease in these plants.

Mr. E. E. Austen kindly determined these maggots and cocoons to belong to the common British fly, Lonchœa vaginalis. When these flies are seen hovering above the bulbs, and ready to deposit their eggs, I shall try the result of a few fumigations; it is probably this which hinders their operations under glass.

Among seeds raised at Isleworth for scientific purposes, I have found time during the past year to note the following:—

Acer palmatum.—This tree rarely carries seed in this country; in fact, I am not aware of its

ever having been notified. I have noted flowers on a few garden varieties of this species, but have never seen seeds form on any of these varieties. The type, carrying about forty seeds in this case, was quite a small pot-plant in my greenhouse. The fruit consisted [*vide* full-size drawing (see fig. 70, A, p. 180)] of twin seeds adhering to each other, and inclosed in one membrane. Each seed was hard, round, somewhat smaller than the Sweet Pea seed, and remarkably winged.

Agapanthus umbellatus. — I have never succeeded in raising that wide-leaved, large-flowered form (which I take to be the typical "umbellatus") from seed. This is the form so widely spread in English gardens as a greenhouse plant, and which is largely used about London during the summer for the decoration of porches, verandas, &c. The foliage will not stand any frost, nor will the bulbs. I have more than once raised seed, but it has never proved virile. Not improbably it has been propagated so long from offsets as to have partly lost the capacity for producing virile seeds.

Agapanthus Mooreanus.—This is held by many writers to be merely a variety, or geographical form, of the preceding, smaller in the flowers, narrower in the foliage, and hardy in dry soils. At Isleworth this plant is of doubtful hardihood, ranking in this respect, probably, with the garden Kniphofias. However, it carries seed freely, ripening in the open borders, even in such an unfavourable summer as the past (1902).

Both plants have five ovules in each half of the ovary, or thirty ovules to the fruit. In umbellatus I have never found more than three seeds to the fruit (generally only one), and these are dull black. In Mooreanus I have found as many as twenty seeds to the fruit, and they shining black.

In both cases the seeds might be mistaken for those of Hippeastrum, if superficially observed, but present this great difference—that they are winged on one side only. Hence their contour resembles to this extent the seed of Acer palmatum [vide preceding drawing (fig. 76, c)].

Romulea rosea.—Seeds about thirty-nine, brown, shining, flattened at both sides, not at all winged. Fruit dehiscing.

Herbertia pulchella.—Fruit resembling Romulea rosea except as follows. Fruit dehiscing at the top only, the seeds remaining tightly fixed in the tough and almost woody casing of the fruit. Thus, although in Romulea the seeds would quickly fall to the ground after dehiscence, yet in Herbertia this would certainly not occur for a long time, unless by the application of some external force. Rain would soon fill the capsule with water (owing to the dehiscence at the top), cause the seed to swell and germinate, and thus burst the case and allow the seeds to fall to the ground. Frost and other agents might have the same effect. The seeds are smaller than in Romulea, of the same colour, but dull, and number about twenty-four to the fruit. *A. Worsley, Mandeville House, Isleworth.*

FOREIGN CORRESPONDENCE.

CULTIVATION OF GINSENG.

Allow me to say, in reply to the Director of Kew Gardens, Sir W. T. Thiselton-Dyer, that the cultivation of Aralia quinquefolia (the Ginseng) is quite an easy matter here. In summer the plants are cultivated outside, but during the winter in the orangery. The compost we use is good rotten leaf-mould. Cuttings taken in autumn strike very easily, and some nurserymen raise nice young market plants, which sell well. *J. K. Budde, Botanic Garden, Utrecht, March 14, 1903.*

FORCING STRAWBERRIES.

The production of very early Strawberries is not easy, even if the necessary means for their culture are at command, and the plants have been properly prepared for forcing. The real difficulty arises in the necessity there is to afford time for the essential organs to properly develop. This is a slow process, and failure often happens in cases of early forced plants, because too high temperatures are permitted during the early stages of growth, with a view to advance the crop. By early Strawberries are meant fruits that are ripened by the beginning of March, and in order to obtain such fruits, plants of suitable varieties must be started in November, when the plants have had comparatively little rest. The forcing of plants later in the season for affording successional supplies of fruit is a very different thing, for these have their organs further advanced, and therefore having in a measure passed their critical stage will safely withstand a greater degree of warmth.

Although excellent crops are grown in vineries, Peach-houses, and similar structures, it is best to devote structures entirely to Strawberries during their forcing season, if this can be done. The common practice, which we used to adopt, of commencing early forcing by placing plants in cool pits upon beds of tree-leaves is a good one, although we are equally successful with the following method. We have a range of pits upwards of 100 feet in length, and 9 feet in width, divided into four compartments, and having an inside walking way by the back wall, and beds firmly filled with tree-leaves in front. These pits are provided with a flow and a return hot-water pipe, placed by the front wall, with hit-and-miss ventilators in front of them. This range admirably answers the purpose of Strawberry forcing, the plants being arranged near to the glass upon removable stages placed over the leaf-beds and walking way.

When the Strawberry season is over, the stages are replaced by trellises for Cucumbers, Melons, and Tomatos. With a view, however, of securing ripe fruit as early as possible, a batch of plants is drafted as soon as the fruits are set from those that are first started, and placed upon shelves in Pine-houses; while those for affording late supplies of fruit are grown and fruited in a house possessed of an eastern aspect, where they can be subjected to cooler and more suitable treatment than is possible in the pits which have a southern aspect.

The plants are taken from their winter quarters in batches at intervals of ten days or a fortnight, and introduced into the pits, and are not watered until the soil has become sufficiently dry to be top-dressed with fresh compost and an artificial fertiliser, made quite firm in their pots with a rammer. They are arranged upon the stages with a thin turf beneath each pot, from which they are at no time disturbed, even if they are moved into another structure, until their fruit is gathered. This use of turf has been declared out of date, but it is a good one, and was handed down to us from the "old school," who left us other valuable lessons, together with some ludicrous ones.

During the early stages of growth the pipes are merely warmed, and this, together with the humid warmth arising from the fermenting beds of leaves, a slight circulation of air both by night and day, and close attention to other details, exactly meet the early wants of the plants, for under this treatment they are found in the morning with their leaves bedewed with moisture. The progress is slow, but strong flower-spikes and robust foliage result. At this stage the temperature is slightly increased by artificial means and the sun's rays. Increased ventilation prevents condensation of moisture upon the plants, and otherwise promotes suitable atmospheric conditions for the proper fertilisation of the blossoms. This is assisted by artificial means, especially in cases of early forcing, so that pollination may be effected perfectly, and the fruits be consequently perfect in form. The fruit once set and thinned, swells freely in a night temperature of about 65°, with 10° more by day from artificial aid, but reaching 85° to 90° from sunheat. As soon as the fruits commence to colour, a high temperature, even if it be from solar-heat, is prevented by affording more ventilation, which, together with a comparatively dry atmosphere, is necessary to promote good colour and flavour.

The plants are regularly supplied with diluted stable-manure water from the time they commence to push their flower-spikes until the fruit begins to change colour. We are in a limited way testing the new variety, The Laxton, both for forcing purposes, and for outdoor culture. *T. Coomber, The Hendre Gardens, Monmouth.*

FORCING ASPARAGUS IN OPEN BEDS.

Some years ago, the *Gardeners' Chronicle* (vol. xxi., p. 201), published a note of mine treating of the forcing of Asparagus in permanent beds. For many years Asparagus forcing has received especial attention in these gardens; in fact, I believe that I am now forcing two beds planted by my predecessor some twenty-five years ago. Most of the beds have been altered; but two of the original ones remain as they were made, which shows that forcing does not weaken the plants, for I can truthfully assure your readers that these beds are in excellent condition, comparing favourably with those which are ten and fifteen years younger. Of course, much depends upon the kind of forcing employed, and if much heat were employed the plants would be weakened thereby. Another important point is, the sort of materials used for forcing. I have observed Asparagus-beds which were forced with smoke-fines and with hot-water, and the plants were very inferior as compared with those forced with fresh tree-leaves and a small proportion of stable-manure.

Formerly the beds here were forced each alternate year, and the shoots were allowed to grow naturally. A different method is now followed, and each bed is forced in turn, and the results are as good as under the earlier one, the only difference being that the beds force more easily, and a crop can be reckoned on in six weeks from the date of beginning to force.

I have previously described the method pursued here, and need only point out the desirability of growing Asparagus for forcing in permanent beds if much produce is required; and that the crop taken from beds forced slowly by fermenting tree-leaves of Oak and Chestnut is but little inferior to the best produce from beds in the open in the months of May and June; also that the largest heads are edible throughout their length, which is not the case with Continental Asparagus as sold in the market. Home-grown Asparagus is much better than was once the case, our large market-growers sending splendid produce into the market, a large portion of the stalk of which is edible. In order to get these fine heads, the cultivation must be of the highest excellence; much space being afforded the plants. At Sion, I wish more space could be given them. The plant must be afforded manure in some form, and in abundance during growth after cutting has ceased, and copious applications of water in dry weather if the soil is naturally light and porous. Our forced beds from May to the end of August are often flooded in dry weather, and manure applied. *G. Wythes.* [As forcing with tree-leaves in the open is a somewhat slow process, it does not answer for the

earliest crops, and these have still to be obtained from lifted roots forced on hotbeds in pits and frames; but there is great saving in the matter of plants and labour by the permanent bed system, when applied to early spring supplies. Ed.]

PLANT NOTES.

METROSIDEROS FLORIBUNDA.

(Bottle-Brush Tree.)

This peculiar looking shrub is very attractive when in flower, and it lasts a long time in flower, and is therefore useful for decorative purposes when grown in small pots or larger ones, or it may be trained up the roof or sides of a greenhouse. I saw a large plant recently, in a garden in a London suburb flowering profusely. The various species grow well in peat, leaf-mould, a small quantity of loam and sand, made very firm with a rammer. During the late autumn and winter, the plants should be kept moderately dry at the root, but never very dry, these being evergreens. After flowering, repotting may be carried out; indeed, it is advisable to do this yearly, affording fresh drainage as well, and clean pots, and if increase in size of ball be not required, the latter may be reduced in size by shaving off an inch or more all round, and repotting in the same sized or a smaller pot. Young plants may receive another shift early in July, August, and the first half of September. The plants may be plunged in a bed of coal-ashes out-of-doors. M. tomentosa, M. ciliata, and M. floribunda, have crimson coloured flowers; M. florida, has scarlet ones; those of M. scandens (buxifolia), are white. Those mentioned here are native of New Zealand. The sort of cultivation adapted for the Myrtle is suitable for Metrosideros. *W. A. C.*

Veitch's Hybrid Aquilegias from Seed.

These plants make a bold show in beds and borders during May and June; they will also grow and flower freely in partial shade. Their flowers are much esteemed for cutting. The beauty of the flowers lies in their graceful spurs, which are about 2 inches in length, and the delicate tints of the flowers. If the seed be sown in May, or early in June, on a border outside, and the seedlings afforded water in dry weather, good plants for flowering in the following season should be obtained. *J. Kerry, gr., Faulkbourne Hall, Witham.*

Camellias at Clare Lawn.

Camellias have in many places fallen upon evil times, possibly owing to their slow growth and the unsuitability of their flowers for sending long distances. But when the plants are grown well, they produce an extraordinary number of flowers. In Sir F. Wigan's garden, Clare Lawn, East Sheen (gr., Mr. Want), there are some splendidly grown specimens from 10 to 12 feet high, and equally large in diameter. They were one mass of bloom a day or two ago, and the foliage is dark and glossy, showing extra health and vigour. They are planted out in a large house having a northern aspect, and are in a line with the famous fernery, in which Mr. Young grows such marvellous Cymbidiums. There are many plants grown nowadays of less interest and usefulness than the Camellia, and where big houses are available for planting them out, many might do worse than plant a few well chosen varieties. *W. A. C.*

"Our Poultry."—The ninth fortnightly part of this useful publication is now ready, and is quite up to the standard of the former numbers. There are plates of a buff Shanghai cock, a prize Malay cockerel, of a black-breasted modern game-cock, and many smaller illustrations. The present part deals with game fowl.

The Week's Work.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Chrysanthemums.—Cuttings which were put in towards the end of January, and are now well rooted, must be repotted at once, or they will suffer a check. Let the compost be one of loam, leaf-soil, with a dash of sand. The pots should be 3 or 4 inches in diameter. Stand the plants in a cold frame, and keep it closed for a couple of days, shading the plants lightly from very bright sunshine. Afford water sparingly until the roots are again active. Earlier-rooted plants may now be repotted into 5 and 6-inch pots, as they become fit; keep them near to the glass, and protect them with mats at night in case of frost. Plants intended for specimens, or if grown as bush or decorative plants, should have the points removed when about 4 inches high, and this may be repeated when a similar length of growth has again been made. Those intended to produce large blooms should be guarded from a check of any kind until the first "break," provided the glass accommodation will permit of this, otherwise pinch the plant as before mentioned, and subsequently remove all but the three best-placed shoots, which will be sufficient to make a plant.

Gesneras.—By potting up a batch of plants every few weeks during the next three months, a succession of flowers may be kept up for a very long time, using as a compost about equal parts loam, peat, and leaf-soil, with sand to keep it porous. Place three to five bulbs in each 6-inch pot, and cover them an inch deep with soil. Stand them on an ash bottom in a temperature of 60° to 65°, affording little water until they are growing actively; then shade them during the brightest part of the day, but do not use the syringe too freely. A little weak guano-water may be afforded them when the roots have filled the pots. Gesneras and Tydæas may be raised from seed sown now, and treated similarly to Gloxinias.

Achimenes.—Part of the stock may now be started. Shake the tubers out of the old soil, and put them into pans or shallow boxes which have been carefully drained and nearly filled with light sandy soil, covering the tubers half an inch deep. Afford a temperature of 60°, and syringe overhead daily in preference to pouring much water through the soil until growth is proceeding freely. Afterwards transfer the plants to other pans, pots, or baskets, as desired. Achimenes require shading similarly to Gloxinias, and should be syringed frequently. Scarce varieties may be easily increased by cuttings when the growth is 2 inches long, or by leaves.

General Work.—Do not allow Freesias to form seeds. Stand the pots on a shelf in a light position in the greenhouse to finish their growth. Solanums and Libonias that have bloomed and will be retained another year, should be pruned close back and placed near to the glass. When growth has again started, rub some of the old soil away from them, and shift them into pots of similar size.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Bedding Plants.—Should the present mild weather continue, remove all forward stock of the more hardy kinds of bedding plants from the houses to cool frames in a sunny and sheltered position. At the time this is done, the soil should be in a rather dry condition, remaining so for a few days, until the plants get acclimatised. This is especially necessary in the case of zonal Pelargoniums. Do not let cold draughts chill the plants. Provide mats to cover the frames at night for the first week or two, even if the nights are not frosty. The gradual hardening of bedding-plants is a matter needing great care.

Abutilons, Fuchsias, and other shrubby plants that are intended for use as "dot" plants in the beds should be potted on as the need arises, preventing them from deterioration through being pot-bound.

Cannas should be shaken out, cut up into pieces with one or more strong crowns to each, and either potted up into some light and rich soil, or put into boxes containing similar material at sufficient distances apart to allow of their remaining in such boxes until planting time comes. They should be started into growth in gentle heat, and induced to grow away very gradually. If too much heat is afforded, the plants make top-growth out of proportion to root-growth. For the first week or two after potting in fairly moist soil, no water should be afforded beyond that supplied by syringing.

Seeds of most kinds of half-hardy annuals that have to be raised under glass should now be sown in pans or boxes, and put in a warm house or frame to germinate. An exception should be made in the case of Zinnias, and a few others which cannot brook anything in the way of a check after being sown; the sowing of these is better postponed to about the second week in April. Among others that need sowing now, special mention may be made of Aster sinensis, Celosia pyramidalis, and Ten-week Stocks. Many who have given up the culture of the ordinary double forms of Aster from any cause, will do well to grow the single one mentioned in one or both its forms, mauve and rose, as both are useful; and the former especially so, either for effect in the borders, or for cutting, and up to the present I have not seen the plants attacked by disease. Celosia pyramidalis, when grown under cool conditions, is excellent for planting out late when in feather, for filling up blanks, or taking the place of plants which are over before summer is ended. Ten-week Stocks are everybody's flowers, but I may draw attention to the new improved perpetual-flowering kinds, of which Princess Alice was the pioneer, and some of which are to be found mentioned in all the leading catalogues; also to the "giant" strain, the spikes and flowers of which are very fine. When the seedlings have grown a few inches, discard all the darkest green plants with fat leaves, and especially those with leaves much rounded at the tips, as these are mostly singles.

FRUITS UNDER GLASS.

By T. H. C.

Peaches and Nectarines.—The earliest fruits are now "stoning," and should not be excited by high temperatures; but afterwards the temperature at night may be increased to 60° or 65° according to the weather, and by day 10° to 15° higher. Let the increased temperatures be accompanied by a moist atmosphere and judicious ventilation. Close the house early in the day, and at the same time syringe the trees and damp the paths and other surfaces, especially those surrounding the hot-water-pipes. The final thinning of the fruit may be done as soon as the "stoning" process is past, leaving, in the case of vigorous trees, one to every 10-inch square of surface, and on old trees one to a square foot. Nothing is gained, but much is lost, by over-cropping. When affording water to the roots, take the opportunity to apply some form of stimulant. Old trees that are carrying full crops of fruits may be benefited by a mulch of farmyard or old Mushroom-bed manure, and if applied now, leave a little ventilation by night and day, that the ammonia, &c., may escape. Tie in the young shoots, cutting out any that have not sufficient space for free development.

Succession-houses.—Where there is a heavy set of fruit, partially thin them out, removing first all from the under sides of the branches. Disbud later trees as soon as the flowers have set, doing the work by degrees, and commencing with the upper portion of the tree. Vaporise with XL-All directly aphides are observed, and syringe the foliage morning and afternoon. Afford trees in flower a night temperature of 50° to 55°, and with ventilation 10° to 15° more during the day. Maintain a fairly dry atmosphere, and pollinate the flowers daily with a camel's-hair or other soft brush.

Melons grown in pots for early supply need to have the female flowers pollinated. After securing a set of three even-sized fruits to a plant, the remainder may be cut away, along with the lateral growths not required. Syringe the plants overhead each morning and afternoon

if the weather is fine. When the fruits are swelling, stimulants may be given at each watering; drainings from the cowsheds if diluted are excellent. A night temperature of 70°, and one of 10° to 15° more by day, will be suitable. Ventilate upon every favourable opportunity, and frequently damp the paths and other surfaces in the house.

Succession-houses. — Plant out into raised mounds of soil, as previously advised, plants for succession crops. If there is plenty of roof-space, the plants may be set out 5 feet to 6 feet apart, and grown on the extension principle, by which several fruits in various stages may be taken from the same plant. If the structures have low roofs plant more thickly, and secure an even set of three to four fruits to a plant, which will ripen about the same time. Sow seeds for plants to produce fruits in July.

Forcing Pines.—Early fruiting Queens that are passing out of flower may be afforded a bottom-heat of 85°, and a night temperature of 65° to 70°, according to weather. Ventilate early on fine mornings, but the temperature may rise to 85° at closing time. Lightly syringe the plants on fine afternoons, and maintain the atmosphere moist. Do not overwater plants potted into their fruiting pots last month. Keep plants in pits well up to the glass, and afford air whenever practicable. The top and bottom-heat may be 5° less than for fruiting plants. Whenever suckers of a suitable size are obtainable, insert them in 5-inch pots, and plunge them close up to the glass in a brisk bottom-heat, keeping the pit close and damp until roots have formed.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury.

Thunias.—These plants having been dormant through the winter are now starting into growth, and when the young growths are about 2 inches long, the plants will make new roots freely, and need attention at once. They should be repotted annually, shaking all the old soil from the bulbs, and cutting away the roots which, being dead, are of no further use, excepting a short length to help hold the bulbs firm when repotted. The bulbs may be potted singly, or made up into specimens. A very good practice is to place five bulbs in a 24-size pot, which should be made about one-quarter-full with drainage material. The rooting medium may consist of equal parts turfy peat, fibrous loam, and leaf-soil, with plenty of coarse sand and crushed crocks added. Make this moderately firm, securing the plants to neat stakes, and finish off ½ inch below the rim of the pot. Abundance of water is needed when the plants are in full growth; but following the operation of repotting, water must be afforded only after careful examination. The plants may be grown in the Dendrobium-house, or in any plant-stove where they can be exposed to full sunshine, and be syringed frequently.

Damping and Watering.—Damp the surfaces in the houses each morning as soon as the minimum daily temperatures are reached, and again in the afternoon, if the weather be fine. Most species will now need an increased supply of water at the roots, and should therefore be examined more frequently. No plant requires a full supply of water directly new growth commences, but it should be increased gradually from that time. If the plants are growing in leaf-mould it is even more important that they should not be overwatered.

Temperatures. — The temperatures may now rise a little above the figures given in this Calendar in January, but do not employ artificial heat in excess; check the fires in the morning as much as the weather will allow.

Ventilation should be given extra attention during the present month, as the winds are very treacherous, and all the plants will suffer if they are subjected to cold draughts. Admit what air is necessary by bottom ventilation only, except on mild fine days, when those at the top of the house may be used advantageously in the cooler departments.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Re-grafting Apple and Pear-trees (figs. 77, 78, 79). —Trees that were headed back in February with a view to grafting them, may now be operated upon. In the case of orchard standards of large size, the method known as "rind" or "crown" grafting is the best to employ. Remove about 6 inches of wood from the stems that have been retained, using a tenon-saw for the work; make the cut smooth with a pruning-chisel. Then with a sharp

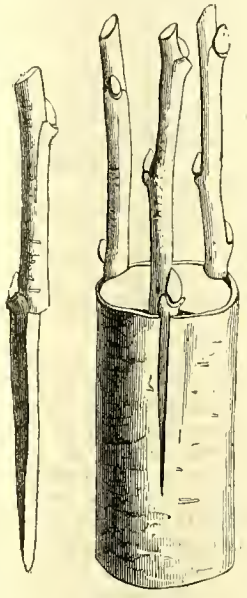

Fig. 77.—"Rind" or "Crown" Grafting.

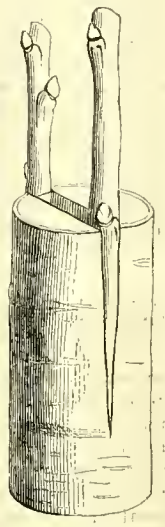

Fig. 78.—"Cleft" Grafting.

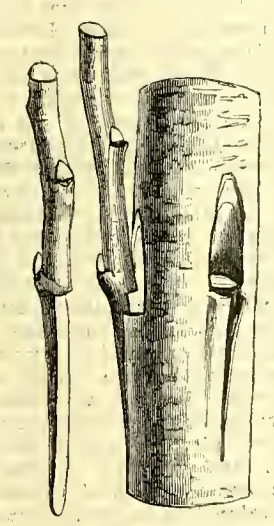

Fig. 79.—"Side"-Grafting.

knife make a downward cut in the bark about 4 inches deep, cutting through to the wood. A piece of hard wood a quarter of an inch in width, and thinned down at the point by a sloping cut resembling the scion to be used, may then be inserted in order to raise the bark. Prepare the scion by removing from the lower part the bark and a small portion of the wood upon one side by a sloping cut of corresponding length to the cut made on the stock. Then push it gently downwards into position, taking care that the bark joins that of the stock on each side. Two scions [or even more] may be put on, one on each side of the branch in the case of large trees. Bind the scions in tightly with matting, and cover the parts with clay prepared as advised in last week's Calendar, leaving the upper part of the scions projecting about 6 inches. Cover the clay afterwards with moss, which will prevent it cracking in dry weather. For small stocks, cleft and side grafting (see figs. 78, 79), are generally the methods used. These have often been explained in the *Gardeners' Chronicle*, and need no further description than that afforded by the figures.

General Work.—Raspberries planted last autumn should be cut back to two or three sound buds at the base. Employ the Dutch-hoe between the lines during dry weather, and cover the ground with a mulch of strawy manure. Employ the Dutch-hoe on fine days between the lines of Gooseberries and Currants, but in heavy soils the prong-hoe is an excellent tool for the purpose.

THE KITCHEN GARDEN.

By John Flemino, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Cabbages that were pricked out in late autumn should be planted out in deeply dug and abundantly manured ground. Set out the smaller-growing sorts at 1 foot apart and 15 inches between the rows; and the larger-growing sorts 18 inches apart and 2 feet between the rows. Stir the surface of the soil between rows of spring Cabbages, and fill any vacancies; also draw up the earth towards the stems of the plants. Prick out seedlings in cold frames as soon as ready, and keep them close to the glass. Sow seeds of early varieties in drills drawn at 1 foot apart on a warm border, and net them securely against birds.

Brussels Sprouts.—Make a sowing of these on a warm border, and as soon as the seedlings are fit, prick them out at distances of 4 inches apart; prick off into frames early sowings made last month under glass.

Cauliflowers.—Make small sowings of early varieties and Autumn Giant, also Self-protecting Broccoli. Prick out early sowings into frames as soon as ready, and afford autumn-sown plants abundance of air, only covering them when frost threatens.

Carrots.—Seeds should be sown occasionally to ensure a continual supply of young roots, which are always preferred. The drills may be drawn 10 inches apart. Sow the seeds thinly, mixing them first with fine soil. Sutton's Champion Scarlet Horn, Scarlet Intermediate, and Veitch's Model, are excellent varieties for early sowing. The main crop and long-rooting sorts are best sown early in April.

Leeks may be sown in the open ground, and then transplanted from the seed-bed at a very early stage for a succession to those raised under glass. Young plants raised in boxes in warmth should be transferred to a cold frame, and gradually hardened off preparatory to planting-out early in April.

Hints on Arrears of Work.—Sowings of Onions, Parsnips, and Celery should be completed. Pull up all winter greens, leaving sufficient only for kitchen use, for if left to flower they will impoverish the soil. Have vacant ground dug or trenched.

Tomatos.—Sow seeds in well-drained pans containing a light sandy soil for plants to be grown in the open air. The varieties Open Air and Outdoor are good ones for the purpose.

Potatos.—The early, second early, and late varieties may be planted in quantity, should the land be sufficiently dry for working. Early short-haulmed sorts may be planted 15 to 18 ins. between the rows, and 9 to 10 inches between the sets. Late varieties require double this space. Drills may be drawn 6 inches deep, or if the soil be light and dry, the sets may be dibbled-in, taking care to make the holes of an even depth. The tubers may also be planted as the ground is dug, and manured, which is a good method on heavy land. Ashleaf, Sharpe's Victor, and Duke of York, are reliable early varieties; Windsor Castle, Snowdrop, and Beauty of Hebron, are good second early sorts; for late varieties rely principally on Magnum Bonum, Triumph, and Up-to-Date.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, MAR. 23—Surveyors' Institution Meeting.

TUESDAY, MAR. 24—Royal Horticultural Society's Committees Meeting (Hyacinth and Tulip Show), lecture on "Photomicography."

WEDNESDAY, MAR. 25—Lady Day. Royal Botanic Society's Meeting. Liverpool Horticultural Association, Bulb and Plant Exhibition.

THURSDAY, MAR. 26—Royal Agricultural and Horticultural Society of Jersey, Show of Bulbs. Irish Gardeners' Association Meeting.

SALES FOR THE WEEK.

MONDAY, MARCH 23—
Hardy Border Plants, Roses, Fruit Trees, Perennials, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Nursery Stock, Merstham, by Wilson & Cleather, noon.

TUESDAY, MARCH 24—
Orchids, by John Cowan, at Trades Hall, Glassford Street, Glasgow, at 12.30.

WEDNESDAY, MARCH 25—
Roses, Azaleas, Palms, Bay Trees, Cannas, &c., at Stevens' Rooms, at 12.30.—3000 Roses of sorts, Azaleas, Palms and Plants, Perennials, Carnations, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.

FRIDAY, MARCH 27—
Imported and Established Orchids from various sources, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.—The Leasehold Nursery Property, No. 182, Green Lanes, Finsbury Park, with 2¼ acres of Land, and 21 Glasshouses, at the Mart, Tokenhouse Yard, E.C., by Protheroe & Morris, at 2.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —44·1°.

ACTUAL TEMPERATURES:—
LONDON.—*March* 18 (6 P.M.): Max. 53°; Min. 43°. *March* 19 (Noon): 55°; Showery, windy.
PROVINCES.—*March* 18 (6 P.M.): Max. 50°, Scilly; Min. 41°, Shetland.

Electric Light in Forcing.

EVER since we saw the very marvellous results obtained by the late Sir WILLIAM SIEMENS, we have urged the desirability of making further experiment as to the use of the electric light in forcing plants, and are, in consequence, the more interested in reading in the *Revue Horticole* of the 1st inst. of some results obtained by M. HARANCOURT.

This gardener made use in his forcing-house of an electric lamp of eighteen candle-power, to be used at night during the forcing of White Lilac. By so doing, he obtained flowers for cutting in fifteen instead of in twenty-five days by the ordinary methods. It is of little use advocating new methods to so-called practical men, unless they can be made to see that there is "money in them." We think the bare fact above recorded must show the most unimaginative that their requirements have been met, or are at least in a fair way of becoming so. The Lilacs are dug up in autumn after the fall of the leaf, and planted in a corner of the stove, and a good watering given, which is not repeated. The electric lamp is placed above the plants, at what height is not stated; but other experiments have shown that it is desirable that it should not be too close to the plants. The temperature is kept at fifteen degrees Centigrade for the first day, seventeen degrees the second day, and twenty degrees for the rest of the period. We need not give full details; suffice it to say in general terms, that under a maximum temperature of twenty degrees Centigrade, and of uninterrupted light—the application of the electric light at or a little before sunset—the Lilacs can be forced into bloom in fifteen days. Coleus, Pelargoniums, Ageratums, and other plants have been treated in like manner with excellent results.

This, again, is another of those experiments that might be carried out at Chiswick without special assistance when once started, at trifling cost and trouble, but to the great advantage of the horticultural community.

The Royal Horticultural Society.

WE notice in the letter of our old correspondent, Mr. WILLIAM MILLER, published at p. 171 in our last issue, as well as in the report of the annual meeting of the Royal Botanic Society (see p. 190), a statement which, if not corrected, may prove mischievous. It is perfectly true that there is, or was some days since, an announcement that the Hall to be erected by the Royal Horticultural Society might be let for concerts and other purposes, when not in use for the fortnightly horticultural meetings. This notice furnishes the opportunity for a scoff at the Royal Horticultural Society. We submit, however, that it is one thing to let a Hall occasionally for legitimate purposes, and quite another thing to include in the programme of the Society itself the inane frivolities which characterise a Society established for widely different purposes. The great local show at Shrewsbury, the York gala, and other annual events also, are on an entirely different footing from the proceedings of supposed learned societies; and if they find it requisite to avail themselves of "attractions," other than those which horticulture furnishes, no reproach attaches to them, for they make no pretentions to do otherwise. When we consider the work for the advancement of horticulture that has been done continuously by the Royal Horticultural Society, even during its darkest days, it does seem anomalous that a portion of a public park should be refused to it, though granted to another Society whose claims are so very much less important, and some of whose proceedings have been of a nature that provokes adverse criticism.

The Shrewsbury Show.

THE Schedule of Prizes to be offered by the Shropshire Horticultural Society at the annual show to be held in Shrewsbury on August 19 and 20, has been issued. It provides for classes in every section of horticulture, as comprehensively as usual, the cash prizes offered amounting to £1,100, with a Silver Challenge Vase for Grapes, value fifty guineas, Silver Cups, and Gold and Silver Medals.

The section for plants opens with Classes 1 and 2, previously in one class. The first is for fifteen stove and greenhouse plants in bloom or foliage, not fewer than ten in bloom; and the second class for six stove and greenhouse plants in bloom or foliage, not fewer than four in bloom. The prizes for the first class are £20, £14, and £8; and in the second class £8, £6, and £4.

Class 17 is a new one for a group of tuberous-rooted Begonias in pots arranged for effect, with Ferns or other foliage plants on a table space of 15 feet by 4 feet. This competition will be likely to bring together some excellent displays of one of the most popular of greenhouse flowering plants. The prizes offered are £10, £6, and £4.

In the cut flower section, the classes from 27 to 44, for florists' exhibits, have been rearranged with a view to obtaining exhibits of greater interest and novelty, and the rest of the classes for the displays of cut flowers of every description, that are one of the features of the Shrewsbury Exhibition, remain very much the same.

Turning to the classes for fruit, we find that the class for a dessert-table decorated with plants, cut flowers, and foliage, and furnished with not more than fifteen dishes of fruit, is retained; and the instruction to the judges to regard quality before size in all fruit classes will operate in this one. The prizes will amount to £40.

In the Champion Grape class, the 1st prize will consist of the Champion Fifty-guineas Cup, at present held by the Marquis of HASTINGS' gardener, Mr. SHINGLER, and £20 in cash; whilst £44 will be divided between the rest of the prizes. We are glad to notice that in this class the pointing has been altered a little, in order to give greater value to the admitted superiority of the Muscat-flavoured Grapes over other varieties. Thus, a maximum of eleven points may be given to all Muscat varieties, white or black; ten points to Black Hamburghs, and nine points to all other varieties. Superior cultivation will be the determining factor in this interesting and important competition, and the decorations that lend additional charm to the fruit will very properly be judged quite separately. Other important fruit classes are those for sixteen dishes of fruit in sixteen varieties, twelve dishes of fruit in twelve varieties, and nine dishes of fruit in nine varieties.

There are numerous classes for vegetables, and we seldom see better vegetables than are shown at Shrewsbury; but most of the prizes, other than those for cottagers, are provided by seed firms, and are accompanied by restrictions that should not be permitted at such an exhibition. The Shropshire Society is so strong that we hope it will yet see its way to refuse any money offered for prizes, unless it is done unconditionally. The Society itself offers about £30 in prizes for vegetables in the open classes.

The exhibition will doubtless be as successful as former ones have been, the Shrewsbury event having come to be regarded as an occasion where Northern and Southern gardeners can meet each other at a sort of halfway locality, convenient to both sections. The arrangements for the show, are as usual in the hands of the courteous honorary Secretaries, H. W. ADNITT and W. W. NAUNTON.

Royal Horticultural Society. — The next meeting of the Committees will be held on Tuesday, March 24, in the Drill Hall, Buckingham Gate, Westminster. Special prizes will be offered for Hyacinths and Tulips by the Royal Bulb Growing Society of Haarlem as follows: 120 Hyacinths in pots (one bulb in each pot) in not fewer than forty varieties, and not more than three pots of any one variety. Open. First prize, £7; second prize, £5; third prize, £3. 100 pots of Tulips (three bulbs of one variety in each pot), to include fifty varieties at least, and not more than two pots of any one variety. Open. First prize, £4; second prize, £3; third prize, £2. A lecture on "Photo-micrography as an aid to the Study of Plant-life" (illustrated by lantern-slides), will be given by F. Martin Duncan, Esq., F.R.H.S., at 3 o'clock.

—— At a general meeting of the Royal Horticultural Society held on Tuesday, March 10, eighty-two new Fellows were elected, making a total of 405 elected since the beginning of the present year.

—— Examination in Horticulture.—The Society's annual examination in the principles and practice of horticulture will be held on Wednesday, April 22, 1903. Full particulars may be obtained by sending a stamped and directed envelope to the Society's offices, 117, Victoria Street, London, S.W. Intending candidates are requested to send in their entries by March 31, if possible. The questions set at all the previous examinations are now published, price 1s. complete.

The National Horticultural Hall.—We are glad to record that among other recent contributions, Amy Lady Tate has given £500, and J. Wernher, Esq., £100, towards the building fund of the Royal Horticultural Society's new Hall.

Linnean Society.—The last meeting of the Society was held on Thursday, March 19, 1903, at 8 p.m., when the following papers were read:—Mr. G. Claridge Druce, "On Poa laxa and Poa stricta of our British Floras." Messrs. J. Parkin and H. H. W. Pearson, "The Botany of the Ceylon Patanas. Part II. Anatomical investigations of the Leaves of the Plants occurring in the Patanas." Exhibitions:—By Mr. Clement Reid: (1) Drawings of seeds from British preglacial and interglacial deposits—Thalamifloræ, including a species of Hypecoum; (2) Recent seeds of Hypecoum procumbens, Linn.

The Ghent Quinquennial: Respectful Suggestions to the Authorities.—1. That at the forthcoming exhibition the columns of the Winter Garden be draped with climbers, and that hanging-baskets be suspended here and there from the girders, so as to break the rigidity of the iron structure. 2. That an office be opened in the centre of the town, where jurors and others may get their tickets on arrival, obtain information and guidance, and especially where the addresses of the visitors staying in the city may be obtained. If each juror would write his name and address, much time would be saved in procuring interviews and meetings between friends—interviews now left to chance.

—— The President and Council of the Royal Horticultural Society have requested the following gentlemen to be so kind as to act as representatives of the Society at the forthcoming Ghent Quinquennial Show, viz., the Right Hon. the Lord Redesdale; Frederick G. Lloyd, Esq., High Sheriff of Buckinghamshire; Mr. James Hudson, V.M.H., all members of the Council of the Society. Mr. Chas. E. Pearson is attached to the deputation as their Secretary.

—— We are requested to remind those intending to exhibit at the forthcoming exhibition at Ghent, that it is necessary they should address their demands to M. Fierens, Secretary of the Royal Society of Agriculture and Botany of Ghent, not later than March 22, or it may be found impossible to include their exhibits in the classes.

Royal Caledonian Horticultural Society.—Mr. P. Murray Thomson, S.S.C., Secretary and Treasurer, 5, York Place, Edinburgh, writes as follows:—"I have been for some time reading over the old minutes of this Society, and have been endeavouring to trace some representatives of old exhibitors, and some of the old prizes which exhibitors selected in place of the Society's Medal. I find that such articles as volumes of the *Botanical Magazine*, silver cups, spectacles, watches, spoons, snuff-horns, &c., were taken; but although I have found a number of these, I have not yet traced one of the original medals. Perhaps in the early years of the century our exhibitors preferred more useful articles. I should also like to trace some representative of James Anderson, who was gardener at Stobo Castle, and who died, I understand, about thirty years ago; James McIntosh, who was gardener at Dalkeith; another Mr. McIntosh, who was gardener at Biel, in East Lothian; or of Archibald Reid, gardener at Balcarres. It occurs to me that among your readers there may be some who could give me particulars regarding the old prizes of the Society, or of the representatives of the above, and other exhibitors; and I shall be very glad if anyone able to give me information will communicate with me. I should be pleased also to receive any old prize lists issued by the Society prior to 1850."

Surveyors' Institution.—On the 9th inst., a paper was read by Sir John G. Barton, C.B. (Fellow), Commissioner of Valuation for Ireland, entitled "Valuation for Rating in Ireland."—The next ordinary general meeting will be held in the Lecture Hall of the Institution on Monday, March 23, 1903, when a paper will be read by Mr. J. L. Crouch (Professional Associate), entitled "The Rating of Brickfields."—The second of the two afternoon meetings arranged for the convenience of country members will be held on Monday, April 20, 1903, at 4 p.m.

Double Red Daffodils.—The following letter from Messrs. Barr & Sons, of King Street, Covent Garden, has appeared in the *Times*:—"We must apologize for trespassing on your valuable space, but we think it only right that the public should not be misled when they purchase from West-end flower-shops flowers which are sold to them as 'double red Daffodils,' with the additional information that they are of natural growth. These flowers are nothing more or less than the old double yellow Daffodil called Telamonius plenus, or Van Sion; the plant has been naturalised in this country for centuries. The red colouring in the flower is simply obtained by placing the stems in a coloured dye, which is immediately absorbed, and enters into the tissue of the petals. The flower is sold now under various names, such as 'Enfield Pride,' and 'Farnboro' Beauty.'"

Hamamelis mollis.—We learn that this winter-flowering shrub was originally introduced to the Veitchian nurseries by the late Charles Maries in 1879, whilst it was not till about 1887 that the plant was collected by Dr. Henry. We took our information (given on p. 169) from the *Botanical Magazine*.

The Olive in South Australia.—From a report just published, we learn that the cultivation is much in favour, the climatic conditions, nature of the soil, and the introduction of the best varieties, all tending to the success of a highly remunerative industry—of the production of fruit and oil of the best quality. The number of trees returned for 1902 is 66,852, against 61,740 in the preceding year.

Correspondence of Robert More and Linnæus.—We are informed that a quantity of letters from Robert More, of Linley, Shropshire, to Linnæus, have been discovered in the King's Library at Stockholm. It is possible that these letters may throw some light on the incidents of Linnæus' visit to England. That Dillenius knew Linley well is shown in his work referred to in these columns in our account of Linley, the seat of Jasper More, Esq., M.P., on Dec. 11, 1880, p. 747.

"Alpine Flowers for Gardens."—We are informed that a new edition of this book, long out of print, will shortly be published by Mr. John Murray. It is revised, considerable additions have been made, and many alpine and mountain shrubs added, the author thinking that these give the best and most enduring of rock gardens for many situations.

Disease in Sweet Chestnuts.—In many departments of France, the Chestnuts are attacked by a disease of which the superficial appearance is such that the cultivators have given to the malady the name of Phylloxera. It appears, however, to have nothing to do with that insect. It occurs on old and on young trees alike, on all descriptions of soil and under the most varied circumstances. According to M. Mangin, in the *Comptes Rendus* for February 16, it is due to the presence of a parasitic fungus which he names Mycelophagus castaneæ. It is one of the Oomycetous fungi, and preys not on the Chestnut root, but on the filamentous fungus threads called mycorhizæ, which envelope the roots, not as parasites, but as co-operators. This necessary co-operation is put an end to by the intruder, and the question now is how to dislodge it or to render it harmless? Bisulphide of carbon is mentioned as a possible remedy, but one which is only practicable in certain soils. Further suggestions for restoring the devastated Chestnut plantations are promised in the future.

Pinguicula caudata superba.—This plant was exhibited at the Royal Horticultural Society's meeting on March 10, by J. T. Bennett-Poë, Esq. (gr., Mr. Downs). The flowers are of very rich colour, being reddish-carmine, with white eye, and in size are about 2 in. by 1¾ in. It is a superb variety of this well-known stove-plant, and deserved the Award of Merit accorded it by the Floral Committee.

Garden Pests.—Sir Jas. Rankin has introduced a Bill into the House of Commons to provide for the eradication of disease and of injurious insects amongst fruit trees in nursery gardens. The Bill has been read a first time.

Royal Geographical Society.—The Back grant was bestowed at a recent meeting, on our correspondent, Dr. William G. Smith, of the Yorkshire College, Leeds, for his investigations into the Geographical Distribution of Vegetation in Yorkshire, with maps, &c.

The Gale in Ireland.—In the House of Commons recently, Mr. J. O'Connor asked the Chief Secretary to the Lord Lieutenant of Ireland if he was aware that during the recent storm 1,242 forest trees and 1,706 Thorn trees were blown down in the Phœnix Park, Dublin; whether the Board intended to dispose of this timber by sale, and if so, to what fund would the proceeds be credited; and whether the Board of Works would take steps to replant this area? Mr. Wyndham, in replying, said that irreparable damage had been done to the finest park in the world. The proceeds of the sale of timber had been appropriated in aid of the replanting. The work could not be undertaken before the autumn.

Chrysanthemums.—The next Congress of French "Chrysanthemists" will be held at Lille, from November 6 to 8 inclusive. Visitors and exhibitors, without distinction of nationality are invited. The schedule will be issued later on.

BELVOIR CASTLE.

[Supplementary Illustration].

(*Continued from p. 155.*)

The Duchess' Garden.—The Duchess' Garden occupies a natural dell on the side of a hill, and is about 8 acres in extent; the shape is like a horseshoe, with the opening to the south-east at the bottom. It has a fall of 100 feet from top to bottom, and by large timber trees is well sheltered, and therefore warm.

It takes its name from Elizabeth, Duchess of Rutland, wife of John Henry, the fifth Duke; a stone pillar and vase (near the steps shewn in the picture) is inscribed with a reference to her, and a splendid portrait by Hoppner in the Castle represents the Duchess leaning against this vase. Some of the flower-beds shown have still the form cut by her directions. To this clever and artistic lady most of the extensive works at Belvoir may be attributed, including the designing of the Castle, the commencement of the Duchess' Garden, and the design of the kitchen-garden.

Near to the steps, but not shown in the picture, is a fine specimen of Araucaria imbricata, planted in 1842; it is now 59 feet high, and its stem 6 feet in circumference. In a corresponding position there is a plant of the rare Cunninghamia sinensis, also planted in 1842; this is 33 feet high, and 3 feet in circumference. A large standard tree of the Portugal Laurel near here has a stem 6 feet 6 inches in circumference; the tree of Cupressus Lawsoniana, shown on the right, is 41 feet high. In front of this the pillar covered with Ivy supports a granite tablet, which commemorates two visits of Fanny Kemble, as follows:—

March 26, 1842.

Farewell, fair Castle, on thy lordly hill,
Firm be thy seat, and proud thy station still:
Soft rise the breezes from the vale below!
Bright be the clouds that wander o'er thy brow
O'er the fair lands that form thy broad domain,
Short be the winter, long the summer's reign.
Pilgrim of pleasure to thy stately towers
Fain would I leave among the friendly bowers
Some votive offering—and, ere on my way,
With many a backward glance I turn to stray.
Bid virtue, strength, and honour crown thy walls,
Joy, love, and peace abide within thy halls;
While grateful mirth and noble courtesy,
As now, for ever held their seat in thee;
And still upon thy lordly turrets rest
The grateful blessing of each parting guest.

* * * * * * *

Two things remain unaltered in this place,
Tho' forty years since I came here are told;
The lovely aspect of fair Nature's face,
And the fine spirit of kind courteous grace
Which still presides here, as it did of old.

March 29, 1883. Fanny Kemble.

Beyond the flower-beds near the Birch-tree, the round-headed shrub shown is Daphniphyllum glaucescens; and close by its side is a large plant of Olearia dentata, an interesting shrub when in flower, but somewhat tender. *W. H. D.*

(*To be continued.*)

ARUNDINARIA SIMONI.

Our illustration (fig. 80), showing the flower and fruit of this species, is taken from a sketch obligingly forwarded to us by Mr. F. W. Burbidge, M.A., of the Trinity College Botanic Gardens, Dublin. In the open air it frequently produces fruit, and contrary to the custom of most Bamboos, it does not die down afterwards, but grows again the following year. The sketch was taken from a plant growing in a cool-greenhouse, with its roots restricted. A. Simóni was introduced in 1862, and an interesting account of it is given in *Lord Redesdale's Bamboo Garden*, 1896, p. 59.

Phyllostachys nigro-punctata has produced fruit at Abbotsbury, Dorset, and seedlings have been raised by Mr. Benbow, to which we shall allude on another occasion. The same species has flowered in Ireland: at Dingle, Tralee, co. Kerry, and at Straffan, co. Kildare.

VEGETABLES.

THREE GOOD EARLY PEAS.

To those gardeners who are desirous of hearing of good early varieties of Peas, I commend to their notice Harbinger, Ideal, and Duchess of York. These Peas were on trial at Chiswick in the season of 1901, and each received an Award of Merit when examined by the Fruit and Vegetable Committee. As seen growing at Chiswick they were everything that could be desired in a Pea in habit and cropping, and a subsequent trial of them made last season by myself served to strengthen the favourable opinion I then

Fig. 80.—Flowers and fruits of Arundinaria Simoni.

formed of them. To those unacquainted with these three excellent varieties, Harbinger may be described as being somewhat similar to American Wonder in appearance, but is superior in bearing, in quality, and earliness. The haulm grows 9 inches in height. It is a fine Pea for sowing at the foot of south walls, or on warm, narrow borders for the earliest crop, and as such it will commend itself to those who have but limited space at command. Ideal is a fine-looking Marrowfat, distinct in appearance, the haulm being very vigorous and of a dark green colour. In height it grows to between 2 and 3 feet, and the pods, which are long, broad, and well filled with from nine to eleven peas, are dark green in colour, and the flavour is delicious. Another strong point in its favour is its earliness, as it is ready for gathering several days in advance of William 1st. Duchess of York is a taller grower than the preceding, and has lighter coloured haulm and pods, which are, however, very broad, long, and well filled, and the peas of a fine flavour. It is a very heavy cropper, and ready as soon as Ideal. All three gave such excellent results last season, that I am relying on them almost exclusively as first crop Peas this season. *A. W., Kent.*

Peas.

I am surprised that anyone should find that grand Pea, Gradus, not to succeed with them. It has been most successful with me for four or five years, part of the time in Cumberland and part in Surrey. I usually sow Chelsea Gem for earliest supply, and Gradus to follow for main early crop. I have also sown it to crop with mid-season varieties, but find it most satisfactory when sown in March. Several years ago I made a selection of varieties of Peas, and have kept religiously to the same, as I found them to be most productive and good in flavour. In addition, I give one or two new varieties a trial annually. I sow Chelsea Gem to commence with, followed by Gradus, then a good sowing of Prodigy; and for the main mid-season crop have always used Ne Plus Ultra (a tall grower, perhaps some will object), but not surpassed in cropping qualities or in flavour. For late crops I always sow Autocrat; and any gardener who has to maintain a long succession of supplies, by carefully sowing the above varieties, will not run short of Peas at a time when the house is full of company, as he might do if he cultivate varieties that do not turn in when expected. *A. C. Smith, Woodlands Park Gardens, Leatherhead.*

Cabbages in February.

I cut some well-hearted Cabbages on Feb. 28, and could cut at least thirty more now. The seed was sown on Aug. 1, and the plants were put out in the middle of October. They began to grow straight away, and I feared they would all "bolt," but to my surprise on returning to the garden after a fortnight's absence, I found a large number had already turned in. I have never heard of anyone cutting Cabbage in February, but probably many more were able to do so. In 1901, I sowed Cabbage-seed on July 29, and cut the first heads about the first week in May, but a great number "bolted." I then grew Ellam's Early, Nonpareil, and Enfield Market, but this year I have Earliest-of-All and London Market. There are no signs of "bolting" at present, and some really good hearts are available. There being an abundance of other vegetables this year, Cabbages are not so much wanted, but they are a novelty. *B. E. G. Bowyer, Morton Hall Gardens, Swinderby, Lincoln.*

Broccoli Chelsea Favourite.

This is a very valuable variety for cutting during March and April, according to the date it is sown. The leaves are close-folding, and the growth closely resembles that fine late variety Model, but the heads are larger. I have also had this variety very good in May, but this season it is turning in earlier than usual.

A good type of Broccoli should be of sturdy growth, with the head well protected to withstand the winter, whether the plants be exposed to severe frosts or excessive rain. *T. H. Slade.*

FIR GRANGE, WEYBRIDGE HEATH.

Although previous attempts at gardening had been made on the beautiful Fir-tree-clad property on which Fir Grange is situated, it was not until it came into the possession of its present owner, W. A. Bilney, Esq., that the favourable site was so cleverly developed. Indeed, the garden which Mr. Bilney acquired was more in the way than otherwise when he settled down, with the assistance of his diligent gardener, Mr. Whitlock, and an ample garden staff, to carry out his ideas of gardening. The plan was to disturb the fine Fir-trees, and other natural beauties, as little as possible, and to arrange a series of garden nooks, dells, rockeries, and shrubberies, which have been so naturally arranged as to have the aspect rather of an orderly wild garden, than of one of recent

formation. In some places Rhododendrons are planted as an undergrowth beneath the trees, and on the sides of the informal walks are patches of pretty hardy and alpine flowers. In one nook are various Primulas, Primula obconica having well withstood this mild winter was lately in bloom.

In a moist dell is a hardy fernery, with spring bulbous plants flowering, and Foxgloves and other showy flowering plants that will bloom later. Beyond is a patch of Japanese Maples, with a bush of Hamamelis flowering, and plants of the blue Omphalodes verna, and its white variety; Leucojums, Hellebores, &c., in bloom. Tree-Pæonies in a group are already shewing their buds; and clumps of most of the showy Lilies will soon break through the ground. In one of the glades a large clump of Bamboos is thriving. These seem quite at home, although, as with many other moisture-loving plants, it is found necessary here to afford them water in dry weather, the soil being light and shallow.

This season has been a very favourable one for spring flowers, and thousands of the different varieties of Narcissus, from the small but pretty-flowered N. cyclamineus, to the more ornate garden-raised kinds, are in bloom; large patches of Crocuses planted in the grass are making a fine show; also Chionodoxa, Scilla, Chionoscilla, and other spring bulbs planted in the alpine rockeries and garden nooks.

Other arrangements have quantities of the showy Iris, Phloxes, and other summer flowers. Another good effect is being prepared by utilising the shortened trunks of the Fir-trees which have had to be cut down, or removed, during the formation of the garden for rustic pillars and arches for supporting climbing Roses, Honeysuckles, Clematis, &c.

Near the large dwelling-house are fine trees of Sequoia sempervirens, S. gigantea, Cedrus Deodara, and other Conifers; on one side of the house Choisya ternata is one of the best evergreen wall shrubs, and thickly set with the buds of its orange-blossom-like flowers.

The brightly-furnished conservatory at one side of the house, some plant-houses and pits provided for the general culture of plants, fruits, and vegetables, are all neatly kept; but a long row of modern houses connected with each other on one side of the large kitchen garden is principally devoted to—

Orchids,

which form special subjects of interest to both Mr. Bilney and his gardener. In them the Dendrobiums which made such a fine display at the Drill Hall on March 10 form the chief feature, and one which well proves the correctness of the choice of them, for the house they occupy is literally a mass of flowers. Most of the forms of D. nobile, including good specimens of D. n. album, D. n. Amesiæ, and other rare forms, are present; but in point of beauty and showiness, half a dozen large specimens of the richly-coloured D. n. nobilius more than hold their own. Others were D. × Socius, varieties of D. × Wiganæ, the new D. × Pirene, D. × Juno, D. × Luna, D. × Cassiope, D. × euosmum virginale, and a very fine lot of varieties of D. × Ainsworthi, D. × splendidissimum, &c., two of the best being D. × Ainsworthi, Hazelbourne var., and Mr. Bilney's latest new one, C. × A. Florence, a very large, nearly white flower with claret disc.

With the Dendrobes appear the bright spikes of Lælia cinnabarina, L. harpophylla, and other showy species; and in the other houses, where the Cattleyas especially are in good condition, there are Dendrobium Wardianum, D. crassinode, D. Brymerianum, Cymbidium eburneum, Sophronitis grandiflora, Masdevallias, Cypripediums, &c. In one house is a large specimen of Dendrobium nobile, covered with flowers, which is interesting for two reasons. This plant and a few others being given Mr. Bilney by a friend first caused him to commence the cultivation of Orchids; and the plant is known to have been ever fifty years in cultivation, having been once in the collection of the late Bishop Sumner.

The Odontoglossums are in a thriving condition; O. triumphans, O. Pescatorei, and a few others are in bloom, along with the scarlet Sophronitis. *J. O'B.*

WARTY POTATO DISEASE.

This new disease appears to have been first recognised in specimens from Cheshire in 1900, afterwards to have been sent from North Wales, and more recently from other localities (fig. 81). It attacks the tubers whilst in the ground, causing warty or nodular outgrowths, either partially or wholly investing the young tubers. Just beneath the surface of these pretuberances, the outer layers are filled with nearly globose dark brown sporangia, about 60 to 70 by 50 μ.

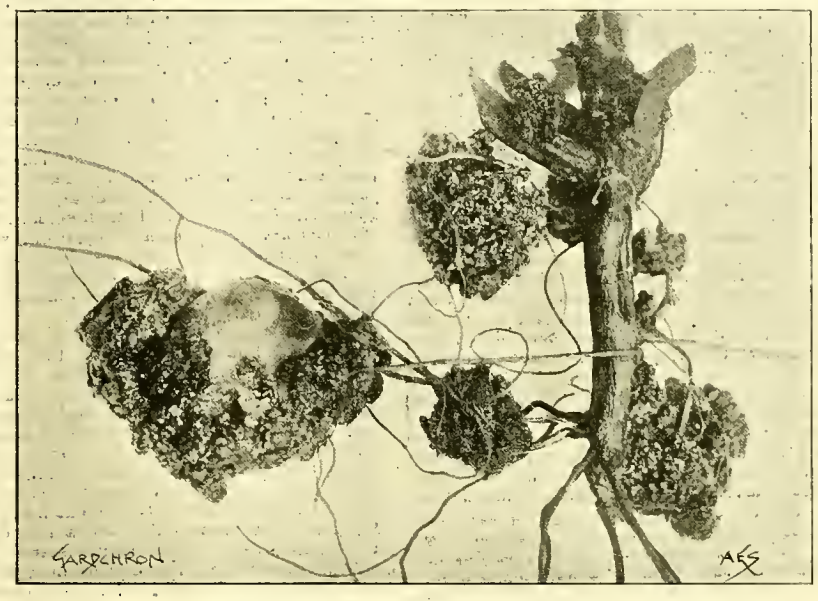

Fig. 81.—Warty disease of potatos.

It has been assumed that this fungus is the same as was described under the name of Chrysophlyctis endobiotica by Schilbersky (*Ber. d. Dent. Bot. Ges.*, xiv., 1896), but no figures or measurements were included in the original description.

A similar disease attacked Beetroot in the grounds of the School of Agriculture at Rouiba (Algiers), and this Trabut examined in 1894, and described under the name of Œdomyces leproides. This was afterwards examined by Dr. Magnus, of Berlin, and he applied to it the name of Urophlyctis leproides. At any rate, it is quite certain that Dr. Magnus was acquainted with the Beetroot tumour, and we are assured that upon his examination of specimens of this warty Potato disease, sent to him from this country, he has pronounced it to be identical with the Beetroot tumour, and therefore should be called Œdomyces leproides. No one could call in question the authority of so old and experienced a mycologist as Dr. Magnus; and when it is taken into account that he has personally been made acquainted with both forms of disease, on Beetroot and on Potato, it is rather presumptuous, without better evidence than a description without figures or measurements, to call in question his decision. At present, therefore, we are content to accept the view adopted by Dr. Magnus, that the Beetroot tumour and the warty Potato disease are produced by the same fungus, for which the accepted designation is Œdomyces leproides.

Of one thing we may be quite certain, that this threatens to become a troublesome disease, unless heroic measures are undertaken to stamp it out, and especially by taking care not to plant Potatos again on ground where warted Potatos have been found, until the soil has been thoroughly disinfected, and then to cultivate some other crop for two or three years. If the Colorado Rhizoctenia finds its way to us across the Atlantic, our Potato crops will be in grave danger from two such powerful enemies. *M. C. Cooke.*

Obituary.

James J. Fromow.—We much regret to have to record the death on the 13th inst. of Mr. Jas. J. Fromow, aged forty-eight, second son of the late Mr. William Fromew, who established the now well-known Sutton Court Nursery a Chiswick more than half a century ago. About the middle of last month deceased injured one of his knees so badly, owing to an unnoticed excavation in the road, that he was obliged to take to his bed. For a time progress seemed to be favourable, but on the 11th inst. blood poisoning set in. The deceased was the senior partner of the firm of Messrs. W. Fromow & Sons, and was of a retiring, kindly nature. He was greatly respected in West London, where he had been identified with religious work almost from childhood. Nearly the whole of his life had been spent in Chiswick, but he took special interest in the expansion of the firm's branch nursery at Bagshot, upwards of 200 acres in extent. It is in a very large measure due to his untiring energy, perseverance, and plodding industry, that the firm of Messrs. W. Fromow & Sons is held in such high esteem among nurserymen and seedsmen. His remains were interred in Ealing Cemetery on Wednesday the 18th inst., in the presence of his two brothers and other members of the family; also the staffs from the Chiswick and Hounslow establishments, many of whom have been in the firm's employ for more than twenty years. Deceased, who married about two years ago, leaves a widow and one child.

HOME CORRESPONDENCE.

WIDDRINGTONIA WHYTEI.—The notice and illustration on p. 162 of this beautiful Conifer makes one wish it were hardy. In 1900 several plants were planted out-of-doors at Pencarrow, and but one is alive; the first winter it suffered severely, but although the growth made last summer scarcely compensates for what it has lost since planting, the plant now looks much healthier, and appears likely to grow stronger this year. I planted a one-year-old plant last May, and although we had as much as 19° Fah. of frost, it has not suffered. These examples are surrounded with wire netting of 1½-inch mesh 3 feet high, as a safeguard against the ubiquitous rabbit. I place about 3 inches of leaves inside this wire cage, with a light covering of bracken to prevent them being blown away. Then I stick into the soil around the plants several good-sized branches of the common Rhododendron ponticum. This is a capital method of protecting tender plants and shrubs, as it permits a fair amount of light and air to reach them. In spite of this partial success, I am not sanguine regarding the future of the Mlanji Cedar as a tree out-of-doors, even in Cornwall. As a wall plant it would no doubt live, and to a certain extent thrive, but one would not care to grow a Conifer in such a position. In the greenhouse young plants are really beautiful, a group of plants 2 or 3 feet high in 5-inch pots is very striking. If cuttings are inserted firmly in sandy soil and placed in a cold pit, they will root readily. *A. C. Bartlett, Pencarrow Gardens, Cornwall.*

COMMISSIONS, SECRET OR CORRUPT.—It is a libel on gardeners to say they "all" ask for commission; it is, as every man with foresight can see, offered to obtain the trade of a particular place. I myself am a head gardener of eight months' standing, and have had offers and inducements, and some very bold ones. Even when my employer bought stuff and paid for it not through myself, the firm concerned sent me 1s. in the pound, which, sooner than cause friction, I handed over to the Gardeners' Orphan Fund, and sent the firm a receipt. Personally, I am out of pocket over this business, but I fail to see how any man with a conscience can accept the money for his own use. I have a letter from one firm who declare I am one of five or six out of 3,000 customers (do not mistake the figures, they are as written to me), and I have kept this letter as of special interest. I saw one "old bird" retire for dishonesty on this very line of business; he used to say, "Make all you can, no one cares for you; then care for yourself." Then to be put off after fifty years of gardening career, and the gardening Press do not know with what "honours" such persons retire. You can publish any part of this letter you may think fit, but you need not append my name, which may remain a *Clean Slate.*

ÆSCULUS INDICA.—The tree of Æsculus indica, referred to by Mr. Bean (see p. 139 in issue for February 28), which was planted at Mildenhall from seed brought from the Himalayas by the late Col. Bunbury, died many years ago. As the same fate has also befallen two more trees planted there since that time, it would seem that the soil—a good light loam on chalk—does not suit this tree. This, rather than the climate of the east of England, was probably the cause of this tree not succeeding there; for at Barton Hall, a distance of 13 miles, some specimens of this species are healthy and flourishing trees. *L. E. Walker, The Gardens, Barton Hall, Bury St. Edmunds.*

PEARS OF RECENT INTRODUCTION.—I agree with all that your correspondent, Mr. Wythes, says, p. 32, about Pears Marguerite Marillat and President Barrabé. They are the finest in their season of those which he mentions. President Barrabé is of very fine quality, and its season, mid-winter or later, according to locality, should commend it to all who are in search of winter ripening varieties. Michaelmas Nelis I have not yet fruited, but I hope to do so this season. *T. H. Slade.*

RICHARDIA.—In the notes about the Royal Horticultural Society's meeting on March 10, you confuse the Richardia æthiopica var. Childsiana with the ordinary Richardia africana. The two varieties are as distinct from one another as the sun and moon. Richardia Childsiana is pure white, while the R. africana has a green base. Richardia Childsiana turns the flower somewhat in the way of an Anthurium. The stamper (spathes?) of the Childsiana is of a soft creamy-white; the habit of the plant is dwarf and compact, while R. africana is very tall, with up-growing leaves; and last, not least, the Childsiana gives five flowers to one compared with R. africana. *De Graaff, Ltd.* [Our remarks were written after inspecting the cut specimens exhibited, and we have still the opinion that the spathes resembled very closely those of the species R. africana, of which Childsiana is only a variety. R. æthiopica is a synonym of R. africana. ED.]

CALANTHE VEITCHI.—That which has appeared recently in these pages will have been puzzling to some of the readers of the *Gardeners' Chronicle*, more especially as to what is the most suitable compost for growing of these plants. The Calanthe requires a high temperature, copious applications of water, and high feeding, whilst making its growth; and an important point is porosity of the soil. Calanthe roots are very sensitive to stagnant moisture, which will often cause the roots to decay in part before growth is finished, and thus spoil the next season's flowering. Turfy loam of middling texture four parts, good turfy peat and dried decayed cow-manure two parts each, with as much coarse sand and finely-broken crocks as will insure the free passage of water, is a good compost. If the loam is light, peat may be omitted, and the loam and cow-manure increased; on the contrary, if the loam is stiff, and contains but little fibre, let loam and peat be employed in equal proportions, with the other additions. The dry cow-dung should be in such a state as will allow of its being passed through a half-inch-meshed sieve. Make use only of 6-inch pots. The next point that is not clear is the sizes of the pseudo-bulbs, Mr. Fulford contending that those of middling size are the best, while Mr. Mayne tells us that you cannot get them too large. If Calanthes are grown in a very high temperature, and receive an excessive amount of nutriment, they will attain to a very large size; but such pseudo-bulbs, as a rule, are not so satisfactory as lesser ones, and the flower-raceme often comes coarse and congested, instead of extending gracefully, and the pseudo-bulbs are apt to decay in the resting season. Mr. Mayne seems to have misunderstood Mr. Fulford about hurrying them into flower, as in support of his contentions he mentions the temperatures in which the pseudo-bulbs are started; whereas I think that what Mr. Fulford meant by "not hurrying the bulbs into flower" was not to subject them to too high a temperature after the growth had become matured, and the foliage showed signs of decay. When this stage arrives, the temperature may be gradually reduced, and water lessened in quantity. Shading should be discontinued as early in the autumn as possible, and as the racemes make their way up, and the flowers commence to expand, the plants should have a free position in a well-lighted house, and a temperature of 60° to 65° at night, or the flowers will be wanting in size, texture, and colour; and when the racemes have little more than half their flowers expanded, no more water should be afforded the root. There is not much to be said in favour of top-dressing with an inch or so of cow-dung when the racemes are coming up, as all benefit could equally well be afforded by diluted manure-water; and where the plants have to be used for house and conservatory decoration, such aids to growth are most objectionable. *W. C. R.*

WEATHER PREDICTION.—Mr. Mawley, in his review of *Natural Law in Terrestrial Phenomena*, seems in his criticism to allow his prejudice to outrun his intelligence. Upon only partial evidence he condemns me. It is stated in the book that only samples of my predictions are given, and upon a sample of my prediction as to the appearances of the sky and atmosphere on pp. 330, 331, he adversely criticises my rainfall predictions, which do not appear in the book, but which were given in a separate column in my *Weather Calendar* for the year 1894, and in the *Clerk of the Weather* for April, 1895. My predictions for one month, February, were compared with the Meteorological Office predictions and with the Greenwich records. There was no room in the book to put in the full comparison, hence the rainfall comparison is omitted. In fact, my predictions during the last twenty years would fill several portly volumes. And surely it was enough to state in the book that only samples were given from my predictions. If critics will ignore this, and themselves make unfounded statements, that is their own, not my fault. My predictions were made the previous year, and it may be seen from my Calendar for 1894, and from the 1895 April number of the *Clerk of the Weather*, on reference to the rainfall column, that I predicted rain on fourteen days, whereas the Meteorological Office predicted rain on twenty-one days, there being fourteen days on which rain fell at Greenwich. Surely this does not confirm Mr. Mawley's statement, that the weather can only be satisfactorily predicted for twenty-four hours in advance. There were during February, 1894, three periods of a different character as to rainfall, namely, a wet period from the 23rd to the 28th, a dry period from the 18th to the 22nd, and an alternately wet and dry period from the 1st to the 17th. As regards the wet period of six days, there was rain on every day except the 26th. I predicted rain on each of the six days, so that I was wrong on one day; but the Meteorological Office predicted rain on the 26th when there was none, and did not predict any on the 25th when it rained. The Meteorological Office was wrong twice against my once. Surely this is not much in favour of twenty-four hours' predictions of the Meteorological Office. Now, take the dry period of five days. There was not any rain recorded at Greenwich, and I did not predict any in my rain column, but as the Meteorological Office predicted rain on the 18th, the Meteorological Office was wrong once. Surely again, there is not much here in favour of twenty-four hours' predictions. Finally, we will take the period from the 1st to the 17th, when rain fell on nine days, and I predicted rain on eight, and the Meteorological Office on fifteen. Surely this ought to convince even the most prejudiced person that the Meteorological Office cannot predict the weather for even twenty-four hours in advance, and as I predicted rain for fourteen days for the whole month and rain only fell on fourteen days, it ought to even convince Mr. Mawley that I can satisfactorily predict the weather a year ahead. Further, the fact that these predictions of mine were based entirely upon the moon's motions, the sun being taken as a constant, shows that a very close approximation in prediction can be made by taking the moon only into account; and that by any method by which the sun is also taken into consideration, the weather can in all cases be accurately predicted, or as near accuracy as may be desirable. *Hugh Clements, Dulwich, S.E.*

ROSA GIGANTEA.—My first bloom opened a few days ago, and was really so lovely that I am sure all lovers of single Roses should try this Rose. I sent it off to Alnwick Castle for Her Grace the Duchess of Northumberland to see. It was just over 5 inches across, of a creamy white, with faint perfume, and well repays my twelve years' wait. *W. C. Leach, Albury Park Gdns., Guildford, Mar. 12.*

ENGLISH CHESTNUTS.—May I be allowed to supplement Sir W. Thiselton-Dyer's note in a recent issue of the *Gardeners' Chronicle*, by saying that there are a great number of Spanish Chestnuts in the park here, which produce some of the finest nuts I have ever remarked in this country. When living in the West Midlands, I had ample opportunities of observing the crop produced by numbers of trees in the park, but the nuts were small compared with those yielded by trees of all ages at this place. Some of these trees are of very fine proportions, and two girth 21 feet 6 inches and 19 feet 4 inches respectively at 6 feet from the ground. Others have stems less in circumference, but they have attained an unusual height for Spanish Chestnuts; two in particular having clean straight stems for about 56 feet and 69 feet before the first branch is reached, and the total height measured with a dendrometer is 103 ft. and

109 feet. The yield last year was poor, but on making enquiries, I find that in nine seasons out of ten these trees bear excellent crops. Last year was an exception, owing to spring frost, and it was a difficult matter to find sufficient under the trees to store for culinary uses during the winter months. *A. W., gr., Godington, Ashford, Kent.*

SHOOTS OF HORSE-CHESTNUT.—Enclosed are some shoots I picked near here from a Horse-Chestnut-tree on March 11, and which measure nearly 6 inches in length, and are as far advanced as the majority of Chestnut-trees should be by May 1 in this district. The tree stands on a bank with a north-east aspect, and appears to be about seventy years of age. From what I can learn from local sources, the tree has come into leaf about the end of February annually for the last forty years, and probably longer. It would be interesting to know if there is another Horse-Chestnut-tree in the country as precocious as this one. If not, I think it may fairly rank with the Cadnam Oak and Glastonbury Thorn as a vegetable phenomenon. *A. C. Forbes, Wilts, March* 11.

THE BRITISH OAK.—The following is from Mr. Fisher's article of March 7, but it is impossible for anyone to subscribe to it who has seen the two Oaks growing under various conditions of soil and climate:—

> "Summing up the matter, I believe that Nature has been adapting the varieties of Oaks to their habitats for thousands of years, and that in the precess the widely divergent pedunculate and sessile Oaks have been evolved on wetter and drier soils, and new produce acorns from which spring trees like their pregenitors."

I would advise Mr. Fisher to visit Windermere and Rydal Water, the wettest district in Britain, the rainfall I believe ranging from 80 to 150 inches. The Oaks there are a feature, they are so fine, old, and sound, and nearly all are of the sessiliflora variety. The owner of Rydal Hall showed me beautiful furniture made from these Oaks by Gillow, of Oxford Street, London, as we happened to talk on the subject. It is a fact, open to the most casual observer, that Quercus sessiliflora and pedunculata are constantly found growing promiscuously together and equally well, and all the varieties between these two. Prof. Fisher persists in writing of the two extreme types only, and ignores the varieties between, and the fact that neither of the types come true from seed. I still assert that the figures in your pages on Sept. 22, 1900, p. 219, of the acorns picked up at Chatsworth showed abortive examples, and I wondered at the time at Mr. Fisher regarding them as anything else. August was too late to find anything but nearly fully swelled acorns or abortions. Mr. Fisher's hypothesis about the shape and position of the leaves and acorns are too far fetched. And now about the paragraph from Mr. Robertson's letter: Mr. Robertson states that last winter he cut down 600 trees of the pedunculata variety, all going back, and the fall did not include a single sessile Oak. Now, I want to know, did Mr. Robertson go over all these Oaks when they were in full acorn, and see that they were Q. pedunculata, and if he did not, at what season did he pick them out? I doubt if either Mr. Robertson or Mr. Fisher could pick either variety out when not in fruit. I think I know the trees at Chatsworth, they are either big or old; and what I should like to know, and I daresay some of your gardening readers would like to know, is, that if these trees are dying now from an unsuitable soil, how they ever grew to be so old and so big as to become stag-headed, and sold for timber at a good price? Moreover, the climate of Chatsworth is the wettest in the Midlands, according to statistica, and the soil is the usual heavy cold soil found on the millstone grit. Yet, according to Mr. Fisher, we have the Oak that should live, dying for want of moisture, and the Oak that should die is flourishing to perfection! *J. Simpson.*

ENQUIRY.

Couch-grass amongst Young Fruit-trees.—"H. S." will be obliged to any reader who has had experience in cleaning ground of Twitch-grass amongst young fruit-trees, if he will describe the best means of getting rid of it. It cannot be forked out, as the trees, unfortunately, are planted in it.

RAILWAY RATES AND THE NATIONAL FRUIT GROWERS' FEDERATION.

The Conference between the delegates from this Federation and the Board of Railway General Managers, which took place on November 4 last, is bearing excellent fruit, already fully justifying the existence of the organisation.

The appointment of the Advisory Committee, with its sub-committee, for dealing with the various Companies, was a happy thought, and the plan is working admirably. These sub-committees have obtained from the Midland the provision of ventilated vans constructed on their own plan, and from the Great Western an improved system of sheeting. Both these Companies have also granted the following substantial concession:—They will now carry consignments of fruit in 5 and 10 cwt. lots by passenger train, at greatly reduced rates, by which means medium-sized towns will be supplied direct from the grower, instead of being compelled to go to large markets. This means a saving in carriage of 7*s.* 6*d.* on 5 cwt. for 100 miles for the grower, and fruit in good, fresh condition, with all the bloom on it, for the provincial dealer. The new and old rates are as follows:—

NEW SCALE.

CONVEYANCE BY PASSENGER TRAIN.

Scale of Rates for Fruit (Not Hothouse),

At Owner's Risk, not including Collection or Delivery.

Miles	Per Cwt.		Miles	Per Cwt.	
	5 cwt. lots	10 cwt. lots		5 cwt. lots	10 cwt. lots
	s. d.	s. d.		s. d.	s. d.
30	1 0	0 11	150	2 5	2 4
35	1 1	1 0	160	2 7	2 6
40	1 2	1 1	170	2 8	2 7
45	1 3	1 2	180	2 9	2 8
50	1 4	1 3	190	2 10	2 9
55	1 5	1 4	200	2 11	2 10
60	1 6	1 5	210	3 1	3 0
65	1 7	1 6	220	3 2	3 1
70	1 8	1 7	230	3 3	3 2
75	1 9	1 8	240	3 4	3 3
80	1 10	1 9	250	3 5	3 4
90	1 11	1 10	260	3 7	3 6
100	2 0	1 11	270	3 8	3 7
110	2 1	2 0	280	3 9	3 8
120	2 2	2 1	290	3 10	3 9
130	2 3	2 2	300	3 11	3 10
140	2 4	2 3			

OLD SCALE.

CONVEYANCE BY PASSENGER TRAIN.

Scale of Rates for Cream, Eggs, Honey, Game, Dead Poultry, Dead Rabbits, Fruit, Vegetables, and Mushrooms.

At Owner's Risk, inclusive of Delivery within the Company's Ordinary Free Cartage Boundary.

Distance.	7 lb.	9 lb.	10 lb	12 lb.	14 lb.	16 lb.	17 lb.
Miles.	s. d.	s. d	s. d.	s. d	s. d.	s. d.	s. d.
Up to 30	0 6	0 6	0 6	0 6	0 6	0 6	0 6
,, 50	0 6	0 6	0 6	0 6	0 6	0 6	0 6
,, 100	0 6	0 6	0 6	0 6	0 7	0 7	0 8
,, 200	0 6	0 7	0 8	0 9	0 10	0 10	0 11
Above 200	0 6	0 8	0 9	0 10	0 11	1 0	1 1

Distance.	19 lb.	20 lb.	21 lb.	22 lb	23 lb	24 lb.	Above 24 lb.
	s. d	s. d.	s. d.	s. d.	s. d	s. d.	d.
Up to 30	0 6	0 6	0 6	0 6	0 6	0 6	*½ p. lb.
,, 50	0 6	0 6	0 6	0 6	0 8	0 6	¼ ,,
,, 100	0 8	0 8	0 9	0 9	0 9	0 9	⅜ ,,
,, 200	0 11	0 11	1 0	1 0	1 0	1 0	½ ,,
Above 200	1 1	1 2	1 2	1 3	1 3	1 3	⅝ ,,

* No less charge than 6*d.* per Consignment.

The above are only specimens of what the Federation is doing. The successes achieved with the above important companies are now being followed up with the Southern lines with every hope of similar results.

It should be observed that so far the work done will benefit all growers, and not members only, but the objects of the Federation are not confined to railway rates and facilities, but embrace every possible means of increasing the prosperity of the industry. It, therefore, behoves all fruit-growers and market gardeners to send in their names as members, for they will find the small subscription of 10s. per annum an excellent investment. *A. T. Matthews, Secretary, 28, Eaton Rise, Ealing, London, W., March* 11, 1903.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

March 10.—*Present:* Dr. M. T. Masters, F.R.S., in the Chair; Messrs. Worsley, Odell, Veitch, Nicholson, Shea, Brown, F.R.S.; Saunders, Massee, Douglas, Michael, Bowles, and Elwes, F.R.S.; Dr. Rendle; Revs. W. Wilks, and G. Henslow, Hon. Sec. Visitor, Mr. de B. Crawshay.

Scientific investigations.—Dr. Masters laid a resolution before the Committee, embodying the opinions of the sub-committee appointed to consider the subject, observing that the question of the Society undertaking in its gardens to investigate physiological and other matters bearing upon practical horticulture was a most pressing one, and should be carried out under a properly appointed director. After several suggestions had been made by Mr. Elwes, Mr. Massee, Mr. Brown, and others, the resolution was seconded by Mr. Shea, passed unanimously, and handed to Mr. Wilks for transmission to the Council, together with various suggestions as to the kind of observations that might be carried out.

Larch Trees.—Mr. Elwes observed that one subject especially which might be investigated at Chiswick, as being most important for forestry, was the diseases of Larches. It was said that the spores of Peziza enter the wounds made by Chermes, and that it appeared some trees are more or less able to resist the Chermes. Hence, if such a race could be established it would greatly assist cultivaters, who might be able to grow valuable trees of this kind.

Assimilation.—Mr. Horace Brown alluded to experiments at Kew, in which he had investigated the results of increasing the amount of carbon dioxide in the air. The assimilation was doubled by an increase of pressure. Further experiments, he thought, might prove to be of great practical value.

Pelargonium disease.—Dr. Cooke reported as follows upon the leaves sent to a previous meeting, by Mr. Meredith, Tibberton, Newport, Salop: "Two leaves of Pelargonium submitted were spotted indistinctly, and in one instance with an appearance of rotting, as caused by the rot moulds. It is reported that the disease appears on this variety only 'like blisters on the young stem and cracks on the older wood'; the leaves are attacked by these spots, which soon cause them to wither.' The leaves sent were closely crushed and compressed, so that all trace of any delicate mould, if present, would have been destroyed. Examination of the spots under the microscope exhibited no trace of mycelium, or speres; stems not seen. From the specimens sent no evidence can be found of fungus parasite, otherwise the appearance would suggest the attacks of a Peronospora, of which one species is known in Germany and Belgium to attack wild species of Geranium. Possibly it might prove to be the early stage of one of the white moulds, such as Ramularia, but it has not the appearance of Ramularia Geranii. At any rate, the leaves sent afford no evidence from which to determine the disease.

Copper in Soil.—With regard to the specimens of soil sent by Mr. A. Gaut, Yorkshire Coll., Leeds, in which some fruit-trees grew, "the leaves of which were annually of a golden colour," Dr. Voelcker reported as follows:—"Both the top and subsoil contain distinctly material amounts of copper; the top soil 016, and the subsoil ·265 per cent. of copper oxide (CuO). Further, I ascertained that the copper is in the insoluble condition. There is no copper removable in a water solution in the ordinary way."

Calanthes and Mendel's Law.—Mr. Chapman forwarded the following reply to Capt. Hurst's observations re-

ported at the last meeting:—"I am not at all surprised to find Capt. Hurst claiming the fact of C. Oakwood Ruby and C. Sibyl having been derived from the same seed-pod, and bearing directly on the action of Mendel's law. Had the rose or rose-carmine characteristics been maintained, Capt. Hurst might have been sure of my support of the principles of which he is such an able advocate. Let us see what has really taken place. The first cross producing C. Veitchi from C. vestita and C. (Limatodes) rosea; the second cross was between C. × Veitchi and C. vestita rubro-oculata (giving a second cross with C. vestita) produced C. Cooksoni, with a yellow eye or disc, also C. Alexandri. Here the first change takes place. The deep ruby eye as seen in C. vestita rubro oculata is removed to the front lobe of the lip and each of the petals, the sepals only being white, in some cases slightly tinted with the colour of the petals. It is remarkable to note that the rose or rose-carmine colours have disappeared. I cannot get at the exact parent that was used in the next generation, but from the information I can gather, the darkest varieties were selected and crossed with each other, until the remarkable variation between C. Sibyl and C. Oakwood Ruby was produced. In the latter case the flower of C. vestita rubro-oculata had been turned inside out. I cannot trace any of the rose or rose-carmine of C. Veitchi, or the shape of Limatodes in the flower, as seen in C. Veitchi, but in the bulb the shape and general structure resembles C. (Limatodes) rosea. I cannot see what advantage can be procured by intercrossing C. Oakwood Ruby with C. Oakwood Ruby. I cannot expect to gain more from this than I procured nearly six years ago when crossing C. Veitchi with its own pollen, and the result was that it reproduced itself from seed. I might add to this another instance, in which I procured a primary crossed hybrid from seed. Nearly ten years ago I crossed C. Leeanum (a very fine form of it), and the result brought its parent, with no more variation than constitutional or cultural conditions are capable of bringing about. With such clear results as these, I, at least, cannot see where the application of 'Mendel's laws' apply."

Trees in Park Lane.—Mr. SAUNDERS showed photographs of some trees, the trunks of which exhibited a knotted appearance. Mr. Elwes observed that Oaks frequently showed the same feature up to 10 or more feet in height. The general opinion was, that it was the result of numerous embryo buds, and that there was no fungus causing it, though similar excrescences often result from insect punctures.

Placea lutea.—Mr. WORSLEY showed germinating seeds of this plant, and described how the radicular end of the embryo first rises upwards, and then turns downwards, producing a (probably temporary) axial root. The cotyledon rises in a loop, like that of an Onion, the tip being retained in the endosperm till it is exhausted. Mr. Elwes noted that the seeds would only germinate after such a time as an adult plant would throw up its foliage.

Hippeastrum Hybrid.—Mr. WORSLEY also showed a cross between H. vittatum and H. sub-barbatum, the red colour of the male being replaced by pink in the hybrid. He observed that this illustrated the prepotency of the "erraticism" of the female parent, in that the offspring bore "red tips and feathering" of the female, instead of being strictly intermediate in character.

Hymenocallis Hybrid.—He also showed flowers of a hybrid between H. Augustina (female) and H. Moritziana (male), in which the flowers agreed with the former, and the foliage with the latter. A curious feature was a correlation between an increase in the number of ovules, and the flower having more perianth leaves than normally.

Euonymus and Caterpillars.—Mr. CARTER, 22, Pelham Crescent, inquired as to the best method of dealing with the caterpillar which attacks the Euonymus. Mr. SAUNDERS replied as follows:—"The caterpillars on Euonymus are those of the 'magpie' or 'Gooseberry and Currant moth' (Abraxas grossulariata), a very common insect, which may often be seen fluttering about during the daytime—it flies very badly; the general colour of the insect is creamy-white, ornamented with black spots; but they vary much in colour, some nearly white specimens having been found, and others which were almost black. The insect measures 1½ in. to 1¾ in. across the open wings. The chrysalides are not made in the ground, but in dead leaves, which they spin together, or in some similar kind of shelter. Any leaves which do not fall with the others should always be examined, as it will be often found that the caterpillar has spun the edges together, and attached it to the bush, and has undergone its transformations within it. Picking the caterpillars off by hand is, no doubt, one of the most effectual ways of dealing with this insect, but it is tedious; spraying the bushes with a solution of paraffin emulsion would probably kill a large number. In the winter, all the dead leaves beneath the bushes should be collected and burnt. The moths may be caught very easily in a butterfly net." Mr. DRUERY observed that he had tried dusting with Hellebore-powder freely into the web-colonies, and that it was effectual in destroying them.

Reversion in hybrids.—Mr. DE B. CRAWSHAY instanced a case of reversion in Odontoglossum crispum × O. c. Crawshayanum. The flowers were crossed in 1895, sown in 1896, and bloomed in 1903. He added the following remarks:—"A seedling raised from a fine Odontoglossum crispum ♀ crossed by O. c. Crawshayanum ♂, which has blotches on the sepals and petals ¾ in. long, of deep purple brown. The seedling has no blotch or spot, save three extremely small (thus ·) ones in two of the four lips (four blooms). Absolute reversion has occurred both in form and absence of blotch. The form is as bad as can be. Hence I deduce that my contention of years' standing, that a true crispum is white and unspotted, has been proved by the first plant to bloom, which has reverted beyond all possible expectation. The blotching of a so-called spotted crispum is, I contend, the remains of hybridity. This, I consider, is, in some way of Nature's own, acquired from O. luteo-purpureum; and as these blotches are therefore adventitious, they fail to transmit their characters to the resulting progeny—*ergo*, the spotted crispums are not pure crispums at all, but hybrids or crosses. (See my article upon 'Reversion in Odontoglossums' in the *Gardeners' Chronicle*, February 14, 1903.)."

Apple Tree Diseased.—Messrs. PEARSON & SONS sent a specimen received from Africa. Mr. Massee undertook to report upon it.

Cypripedium Crosses.—Specimens of Cypripedium × Actæus were exhibited by Mr. J. DOUGLAS, to illustrate the reversion of Orchids. C. Actæus was raised by crossing C. Leeanum with C. insigne Sanderæ, the last-named variety being totally different from any other variety of C. insigne, as it lacks the large spots on the dorsal sepal. C. Leeanum was obtained by crossing C. Spicerianum with C. insigne Chantini, and the reversion consists in the fact that one variety of C. Actæus was almost a replica of the original form of C. insigne Chantini, from which C. Leeanum was produced. Many of the other forms—indeed, nearly all of them—might be described as good varieties of C. insigne.

CROYDON HORTICULTURAL MUTUAL IMPROVEMENT.

MARCH 3.—At a meeting on the above date, Mr. W. Briscoe, of the Royal Gardens, Kew, read his prize essay on "Propagation." For the last two years Mr. Briscoe has been at Kew, where the many facilities offered there have greatly benefited him in technical and practical parts of horticulture.

ROYAL HORTICULTURAL OF ABERDEEN.

MARCH 4.—At a meeting of the Directors of this Society, held in the office of the Secretary, Mr. J. B. Rennett, Advocate, Aberdeen, on the above date, an interesting ceremony took place, the meeting being taken advantage of to present to Mr. Alexander Milne, Aberdeen (who had been a Director of the Society for more than twenty years, and latterly a Vice-Chairman), a fine marble clock, in recognition of his long, and self-denying services to the Society.

Mr. Samuel Pope, Vice-Chairman to the Directors, occupied the chair, and there was a large attendance of the subscribers to the presentation. Apologies for absence were read from Sir Allan Mackenzie, a former Chairman; Dean, of Guild Lyon, a former Vice-Chairman, and many others.

Mr. William Pyper, of Hillhead, Aberdeenshire, made the presentation, and in doing so referred in felicitous terms to the splendid work Mr. Milne had done for the Society during the many years he had been connected with it, and expressed regret that the Society was now to lose Mr. Milne's valuable and ungrudging services.

Mr. Milne acknowledged in feeling terms, and mentioned that exactly sixty years ago his paternal grandfather, Mr. Thomas Milne, had been the recipient of a similar mark of recognition of services rendered by him to the Royal Horticultural Society of Aberdeen as its Treasurer.

The gifts consisted of the aforesaid clock for Mr. Milne, and a silver salver for Mrs. Milne; and the clock bore the following inscription:—"Presented by the Directors and Members of the Royal Horticultural Society of Aberdeen and other friends to Mr. Alexander Milne, Bon-Accord Farm, Old Skene Road, together with a silver salver to Mrs. Milne, on the occasion of his retirement from the Vice-Chairmanship of the Society, February, 1903."

READING AND DISTRICT GARDENERS'.

MARCH 9.—At the fortnightly meeting held on the above date, two subjects were discussed, viz., "Cineraria stellata" and "Roman Hyacinths," introduced respectively by Mr. C. P. Cretchley, of The Gardens, The Honeys, Twyford; and Mr. R. Bassil, of Reading. The papers in each case were short, and the discussions which followed were exceedingly interesting; those taking part were the President, and Messrs. Powell, Lever, Tunbridge, Townsend, Neve, Wicks, E. J. Dore, Hinton, Wilson, Cox, Judd, Burfitt, and W. F. Dore. Several new members were elected.

BRISTOL & DISTRICT GARDENERS'.

MARCH 11.—A well-attended meeting was held at St. John's Rooms, Redland, on the above date. This was the evening set apart for the official visit of the Bristol Amateur Horticultural Society. Two of the prominent members of the Society of Amateurs came forward with well written papers; Mr. Batson choosing for his subject "Cyclamen Culture," and Mr. Johnstone "Roses, from an Amateur's standpoint." At the close of each lecture a good many questions were put to the lecturers, who answered each in a clear and concise way.

The final meeting of the Society this session will take place on March 26, when Mr. W. Ellis Groves, the Secretary, will give a lecture on "The Value of Mutual Improvement Associations."

HIGHGATE AND DISTRICT CHRYSANTHEMUM.

MARCH 11.—The nineteenth annual general meeting of this Society was held on the above date, the High Sheriff of Middlesex (Mr. C. F. COBY-WRIGHT, J.P., D.L.) presiding, and there was a large attendance of members.

The annual report and financial statement were submitted, from which it appeared that the last exhibition of the Society, which was held at the Alexandra Palace, was a great horticultural success, and was patronised by a larger number of visitors than on any previous occasion. The receipts for the year show a great increase upon former years, especially the donations towards the special prize fund. The committee have arranged for their exhibition for this year to again take place at the Alexandra Palace on November 4, 5, and 6.

LIVERPOOL HORTICULTURAL.

THE last of a series of lectures in connection with the above Society was held recently, when Mr. Hathaway, Superintendent of the Public Parks and Gardens, Southport, delivered a lecture on "Profitable Fruit-growing for Small Holders," describing the principal details in fruit growing, and emphasising the importance of selecting suitable positions, and of thoroughly breaking up the subsoil. It was recommended to shorten the shoots of Apples, Pears, Plums, &c., at planting time to about one-third of their length, in order to promote strong growth instead of fruit-blossoms, which in many cases cripples the trees for years afterwards. *J. S.*

ROYAL BOTANIC.

(ANNUAL REPORT).

MARCH 14.—A meeting of the Fellows of this Society was held in the Museum in the gardens, Regent's Park, on the above date, at which the Earl of Aberdeen, Sir John Hutton, Sir Wm. Collins, and others were present, Mr. Pembroke S. STEPHENS, K.C., presiding.

Attention was called to the remarks of Sir Trevor Lawrence, who was reported to have said in presiding at the Annual General Meeting of the Royal Horticultural Society on February 10, that they could not combine with the Royal Botanic Society owing to the large debt with which the Society was burdened. Mr. E. A. Sayers said Sir Trevor Lawrence had certainly gone out of his way to make a most uncalled for attack on the Royal Botanic Society, and he would ask (1), whether any rejoinder had been sent to the Press in connection with Sir John Hutton's letter to the *Times*; (2), whether any other communication had passed between the two Societies, and (3), whether the Council would take the matter into a most serious considera-

tion with a view to counteracting Sir Trevor Lawrence's statements, which were inaccurate and unnecessary.

Sir John Hutton, Chairman of the Finance Committee of the Royal Botanic Society, said that no communication had been made either directly or indirectly by the Royal Horticultural Society to the Royal Botanic Society, and there was no doubt that the statement had been highly prejudicial to their interests. It was strange that although Sir Trevor Lawrence had said that the Botanic Society had taken to methods of raising money which were different to those followed by the Royal Horticultural Society, yet the following notice had appeared on the Society's site at Westminster: "*Royal Horticultural Society.*—The Society proposes to use the New Hall for public exhibitions, concerts, meetings, and entertainments of like kind, and will apply to the London County Council for a license for music and dancing." Horticulturists were people who evidently lived in glass houses, and they should not throw stones. The Horticultural Society certainly should not cast stones at those who were using honest and legitimate means to raise funds for Horticultural purposes, and the study of Botany. Then as to the Royal Botanic Society being heavily involved: they were not at all afraid of their debenture debt, which would be honestly met, and their new lease should put them in a sound financial position. If the statement was made ignorantly, it was reprehensible; and if made maliciously, it would be open to more serious consideration. Still, possibly the reason Sir Trevor had not answered his (Sir John's) letter, was that he had no reply to make.

Mr. Stephens, K.C., on behalf of the Council of the Royal Botanic Society, said the matter had arisen out of a letter written by Lord Lister on their behalf, offering the use of their beautiful Gardens for exhibitions of the Royal Horticultural Society, whose site of operations had been for a great many years the Drill Rall, at Westminster, and the Temple Gardens. No one interested in horticulture would deny that the Drill Hall was not an ideal place for shows, and their position in the Temple, was, as he knew, not a very secure one. There had always been two views in the Temple itself, as to the desirability of having the shows there, in a place which was primarily for law and lawyers, and a change of Lord Chancellor might mean that the shows might not again be held in the Temple. That was in their minds when Lord Lister communicated their resolution to the Horticultural Society. They had not had a direct reply as to whether the proposal would be entertained, but someone at the meeting of the Horticultural Society having said, "It was to be regretted that they had not entered into closer relationship with the Botanic Society, so as to avail themselves of advantages with which that Society possessed," the Chairman's remarks had come like a bolt out of the blue. He (Mr. Stephens) ventured to think that a more unlooked-for, uncalled-for answer to Lord Lister's letter on behalf of their Society it was difficult to conceive. Sir Trevor Lawrence had said that any amalgamation with the Royal Botanic Society was impossible. Then he said that "the Botanic" was deeply in debt. The Royal Botanic Society, like the Horticultural Society, had spent a great deal of money, and the Botanic had been put to great expense in laying out their gardens; but their debt had never been repudiated. Some of the Fellows had voluntarily increased their subscriptions by refraining from drawing the interest on which they were entitled on their bonds, and they could hold up their heads in the face of everybody, including the Horticultural Society. The next point was, that the Botanic Society had taken to methods of raising money which were different to those followed by the Horticultural Society; but, as Sir John Huttnn had pointed out, they had only to go to Westminster to see the Horticultural Society's own notice-board. The Royal Botanic Society would not apply to the London County Council for a promiscuous license for singing and dancing. Then they were charged with having taken to clubs, bazaars and dances. What they had done was to open a Club composed exclusively of members of the Society, and he failed to see the enormity of it. They had held bazaars, one was in aid of Great Ormond Street Hospital, and the Queen herself had been present. That had been a great advantage to the hospital, and there was certainly nothing wrong about it. Then the dances they had had were in connection with private parties in their own grounds, and everyone would admit that one of the greatest developments in horticulture in recent days was the floral decoration of tables and the interior of houses. He took his stand upon every item referred to by Sir Trevor Lawrence, and would assert that they had been doing their duty, and nothing more. Sir John Hutton had told them what these arbiters of taste had done, but there were on the Council of the Royal Horticultural Society men of enlightenment, and earnest men in matters of horticulture, and he would appeal to them to read over the letter signed on behalf of the Botanic Society by Lord Lister. He asked them to deal with it in a spirit more worthy and dignified, in a way they would expect from a Royal Society, and not with the attitude assumed by their Chairman. (Cheers.)

On the motion of the Earl of Aberdeen, a vote of thanks was given to Mr. Stephens for presiding.

J. Bryant Sowerby, Secretary.

TRADE NOTICES.

Mr. Charles Barnett, formerly of The Dell Gardens, King's Norton, has commenced business at Albrighton, near Wolverhampton, as a Rose grower and general nurseryman.

We are informed that Mr. Maurice Gray has been appointed by Messrs. J. Peed & Sons, Roupell Park Nurseries, West Norwood, to represent the firm in the Isle of Wight, and south and south-eastern coast towns.

MARKETS.

COVENT GARDEN, March 19.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Plants in Pots, &c.—Average Wholesale Prices.

	s.d.	s.d.
Acacias, per doz.	8 0	12 0
Adiantums, doz.	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæs, doz.	9 0	18 0
Aspidistras, doz.	18 0	36 0
Aucubas, per doz.	4 0	8 0
Azaleas, each ...	2 0	3 0
Begonia Gloire de Lorraine ...	6 0	12 0
Callas, Elliotiana, each... ...	10 6	—
per dozen ...	4 0	6 0
Cinerarias, p. dz.	4 0	8 0
Crocus, per box .	1 0	1 6
Crotons, per doz.	12 0	24 0
Cyclamens, p. doz.	6 0	18 0
Cytisus, per dozen	6 0	9 0
Daffodils, p. doz.	4 0	6 0
Dracænas, var., dz.	12 0	48 0
Ericas, per dozen	8 0	18 0
Euonymus, vars., per dozen ...	4 0	6 0
Ferns in variety, per dozen ...	4 0	30 0
Ficus elastica, per dozen	9 0	24 0
Hyacinths, p. doz.	8 0	10 0
Lilac, pots, each	2 0	3 6
Lycopodiums, pr. dozen	4 0	5 0
Marguerites, doz.	5 0	8 0
Mignonette, doz.	8 0	10 0
Orange-trees, each	3 0	7 6
Palms, various, each	3 0	20 0
Pelargoniums, Scarlet	4 0	6 0
Pteris tremula, p. dozen	4 0	8 0
— Wimsetti, doz.	4 0	8 0
— major, per dozen ...	4 0	8 0
Solanums, p. doz.	6 0	8 0
Spiræas, per doz.	6 0	8 0
Tulips, red, p. box	1 0	2 0
— white, p. box	1 0	2 0
— yellow, p. box	1 0	2 0
— all colours ...	1 0	2 0

Cut Flowers, &c.—Average Wholesale Prices.

	s.d.	s.d.
Anemones, per dozen bunches	1 3	2 0
Azaleas, per doz. bunches ...	2 0	4 0
mollis, bunch	1 0	—
Bouvardias, per dozen bunches	6 0	8 0
Callas, per dozen	2 0	3 0
Camellias, p. doz.	2 0	3 0
Carnations, per bunch	1 0	3 0
Chrysanthemums, per. bunch ...	1 0	2 0
Daffodils, p. doz. bunches ...	2 0	6 0
Eucharis	2 0	3 0
Ferns, Asparagus, per bunch ...	1 0	2 6
— French, per doz. bunches	0 4	0 6
— Maidenhead, p. doz. bunches	4 0	6 0
Freesias, per doz. bunches... ...	2 0	3 0
Gardenias, per box	4 0	6 0
Hyacinths, Roman, dozen bunches	3 0	6 0
Iris, per bunch ...	1 0	—
Lilac, White	2 0	4 0
Lilium album, per dozen blooms	1 6	2 6
— auratum, per bunch	4 0	6 0
— longiflorum, per bunch ...	3 0	6 0
Lily of the Valley, p. doz. bunches	4 0	12 0
Marguerites, yellow, per dozen bunches ...	2 0	2 6
Mignonette, doz.	2 0	3 0
Mimosa, per bunch	0 6	1 0
Narcissus, dozen bunches ...	1 6	3 0
Orchids: Cattleya, dozen blooms...	12 0	15 0
— Cypripedium insigne, per dozen	2 0	3 0
— Dendrobiums, per dozen ...	2 0	3 0
— Odontoglossums, dozen	2 0	4 0
Pelargoniums, zonal, dozen bunches ...	3 0	6 0
— White... ...	3 0	6 0
Primroses, dozen bunches ...	0 6	1 0
Prunus, p. dozen sprays	5 0	—
Roses, Mermet ...	3 0	6 0
— various, per bunch... ...	1 0	4 0
— red, p. bunch	2 0	3 0
— white, bunch	1 0	2 0
Smilax, per dozen trails	1 6	2 6
Snowdrops, dozen bunches ...	0 9	1 6
Stocks, per dozen bunches ...	3 0	—
Tulips, all colours, per bunch ...	0 6	1 0
Violets, per dozen bunches ...	1 0	2 0
— Parma, per bunch... ...	1 0	2 0
Wallflowers, per dozen bunches.	3 0	3 6

Fruit.—Average Wholesale Prices.

	s.d.	s.d.
Apples, English, per sieve ...	2 0	3 6
— dessert, various, p. bush.	4 0	6 0
— culinary, Wellingtons, various, per bush. ...	3 6	8 0
— Californian, cases	10 0	16 0
— American, per barrel... ...	14 0	20 0
Bananas, bunch .	9 0	13 0
— loose, dozen .	1 0	1 6
Chestnuts, Italian, per bag ...	10 0	15 0
Cobnuts, per lb....	0 3	—
Grapes, Almeria, per doz. lb....	4 0	6 0
— — French ...	1 3	1 6
— Colman, A., per lb. ...	2 6	3 6
— — B., per lb.	1 0	1 6
Lemons, per case	9 0	13 0
Lychees, packet .	1 0	—
Oranges, case ...	9 0	14 0
— Bitter... ...	7 0	8 0
— Tangierines...	3 0	—
Pines, each ...	2 0	4 0
Strawberries, Au. per lb. ...	5 0	7 0
— B., per lb. ...	2 0	3 0

Vegetables.—Average Wholesale Prices.

	s.d.	s.d.
Artichokes, Globe, per dozen ..	3 0	4 6
— Jerusalem, p. sieve	0 9	1 0
Asparagus, sprue, per bundle ...	0 9	—
— Paris Greco...	5 0	—
— English, per bundle ...	7 6	8 0
Beans, dwarf, lb.	0 8	0 10
— Channel Is. lb.	0 8	0 10
— Madeira, hkt.	2 0	—
Beetroots, bushel	1 0	1 3
Brussels Sprouts, per sieve ...	0 6	1 0
Cabbages, per bag	1 0	1 6
Carrots, doz. bun.	1 6	2 0
— bag (washed .	1 6	2 6
Cauliflowers, doz.	1 6	2 6
Celeriac, per doz.	2 6	—
Celery, per dozen bundles ...	4 0	10 0
Chicory, per lb....	0 2½	—
Cress, per dozen punnets... ...	1 3	—
Cucumbers, doz.	2 6	4 6
Endive, per doz.	1 6	—
Garlic, per lb. ...	0 4	—
Horseradish, foreign, p. bunch	1 3	1 6
Leeks, per dozen bunches... ...	1 0	—
Lettuces, Cabbage, per dozen ...	0 10	1 0
Lettuce, Cos, doz.	4 0	—
Mint, dozen bun.	3 0	4 0
Mushrooms, house, per lb.	0 10	1 0
Onions, per bag...	3 6	—
— English, cwt.	4 6	5 0
— foreign, case.	6 0	6 6
— picklers, per sieve	2 6	3 0
Parsley, per doz. bunches ...	1 6	2 0
— sieve	0 9	1 0
Parsnips, per bag	1 0	1 6
Potatos, per ton	70 0	110 0
— New Teneriffe, per cwt. ...	10 0	14 0
— New, Kidney, Frame, p. lb.	0 5	0 7½
Radishes, p. doz.	0 9	1 0
Rhubarb, Yorks., — outdoor ...	0 8	0 10½
per doz.... ...	1 0	2 6
Salad, small, punnets, per doz....	1 3	—
Savoys, per tally.	3 6	5 0
Seakale, per doz. punnets... ...	12 0	14 0
Shallots, per doz.	0 2	—
Spinach, per bushel	2 6	—
Tomatos, Canary, deeps	2 0	4 0
Turnips, p. dozen	1 6	2 0
— bags	1 0	2 0
Watercress, per dozen bunches.	0 6	—

Remarks.—Cape fruits include black and white Grapes, some fine Plums, Kelseys, also Nectarines, and the prices are, per case: Nectarines, 4*s.* to 8*s.*; Peaches, 3*s.* to 5*s.*; Plums, 2*s.* to 6*s.*; Pears, 3*s.* to 5*s.*; Grapes, 8*s* to 10*s.*; some Grape fruits, case of 64 to 96, 20*s.* Of home-grown vegetables, Broccoli Sprouts are 1*s.* to 1*s.* 6*d.* per bag; Turnip-tops, 1*s.* 6*d.* to 2*s.* per bag. Algerine Potatos are 14*s.* per cwt.

Potatos.

Various samples, 70*s.* to 90*s.* per ton; Dunbars, red soil, 105*s.* to 110*s.* Seed Potatos in variety, prices on application. *John Eath, 32 & 34, Wellington Street, Covent Garden*

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period March 8 to March 14, 1903. Height above sea-level 24 feet.

1903. March 8 to March 14.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 8	W.	39·9	33·7	48·3	33·3	...	41·9	44·2	45·8	22·1
Mon. 9	S.E.	42·2	36·9	48·7	29·0	0·16	40·9	44·0	45·7	17·3
Tues. 10	S.S.E.	42·7	41·7	44·1	41·2	0·07	42·3	43·7	45·7	38·8
Wed. 11	S.S.E.	33·2	31·9	51·1	28·9	...	41·7	43·9	45·5	21·3
Thu. 12	S.S.E.	41·5	40·9	53·4	28·2	...	41·2	43·9	45·4	16·6
Fri. 13	S.S.E.	48·5	41·7	59·0	32·3	...	41·7	43·8	45·4	22·3
Sat. 14	E.N.E.	41·9	42·3	54·3	39·8	0·06	42·9	44·0	45·3	27·0
Means	...	41·8	39·7	51·3	33·2	Tot. 0·29	41·8	43·9	45·5	23·6

Remarks.—Foggy mornings, fine days, and frosty nights have been the prominent feature of the week's weather.

THE WEATHER IN WEST HERTS.

This is the eighth week in succession that the mean temperature has been higher than is seasonable. All the days during the week have been more or less warm, and on the warmest day the temperature in shade rose to 57°—the highest reading as yet recorded this month; it was, however, twice exceeded in February. On the other hand, on two nights the exposed thermometer showed respectively 9° and 12° of frost. Rain fell on three days, but the amounts were insignificant. The percolation through the gauge covered with short grass has nearly ceased, and only very small quantities of rain-water are now coming through the bare soil gauge. Notwithstanding two sunless days, the record of clear sunshine averaged nearly four and three-quarters

hours a day. Calms and light airs prevailed until the 16th, when the wind was somewhat stronger. The amount of humidity in the air was on the whole unusually small for the time of year. Gentiana verna came first into flower in my garden on the 11th, which is sixteen days earlier than last year, and twenty-five days earlier than in 1901. *E. M., Berkhamsted, Mar.* 17, 1903.

ANSWERS TO CORRESPONDENTS.

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

ARAUCARIA EXCELSA: *Araucaria.* Take off the tops and insert them in pots of sand, making the sand very firm afterwards. Do not employ warmth, but allow the cuttings to remain for a considerable time in a cool-frame. The plants so "topped" will produce a number of growths that may afterwards be used in the same way for increasing the stock. If the cuttings are treated skilfully, they will form plants possessed of a better feathered base than plants raised from seeds.

ASHES OF ANTHRACITE COAL: *F. L.* The plants are not likely to suffer injury if the pots be plunged in these ashes. You will be able to test the effects upon the roots by observing if the fibres that penetrate through the crock-hole into the ashes are injured. It would, however, be better to use ashes that have remained for a considerable time out-of-doors than those fresh from the fire.

BULBS: *E. B.* A very bad case of Eucharis or bulb-mite. We fear there is no remedy.

CAMELLIA BUDS DROPPING: *Grange.* Judging from appearances, you have kept your plant growing so that the leaf-buds or shoots are well developed when they should have been at rest. The plant is not able to stand the strain of bearing leaf-buds and flower-buds at the same time, hence the latter have shrivelled and fallen off. Probably, you have given too much water and too high a temperature.

CHRYSANTHEMUMS: *M. L.* There should be no difficulty in hastening the flowering period of Chrysanthemum niveum on the second crown bud; first by pushing the growth forwards as much as possible in the early stages, so that the final potting may be done ten days to a fortnight earlier than has been usual in your case; secondly, by housing the plants earlier. These are means you might adopt, and still grow the plants naturally without stopping the shoots. But you might obtain the flowers earlier than you have done previously by stopping the plants early in April, and then "taking" the second crown bud, which by the stopping will be accelerated. We are afraid ordinary first-crown buds would open too early for you; besides, they would be less likely to flower freely. Have you taken into account the variations of the seasons? Last year being so dull and wet, all late Chrysanthemums were very backward; but should the coming summer prove warmer, the flowering period will be hastened accordingly. To induce plants to do as we wish them to do is an art, and can only be approximately done, even after closely studying the varied conditions of season, &c., as culture proceeds; but our remarks may help you to attain your object—they apply equally to the variety Mdlle. Thérèse Panckoucke. In regard to the treatment of the variety François Pilon, we have found this to succeed best when flowered freely in rather large pots, say pots 10 inches in diameter. Stop the growth at the end of April, and select three of the resultant shoots; pinch these in the middle of June, and select nine shoots in all, which will produce nine good flowers; or you can carry on the first three shoots for three blooms only, without the June stopping. In this case, smaller pots would suffice.

CUCUMBER LEAVES: *F. P. D.* The leaves are much thinner in substance than they should be, and the injury is certainly that of scalding. The plants may also be affected by Cercospora melonis, but the leaves received show no evidence that such is the case. Seek to get better leaves upon your plants, and if the rate of growth must be lessened, it will be better than having to lose half a crop through attacks by disease.

CYCLAMEN WITH TWIN FLOWER STALK: *Bodorgan.* The union of two flower stalks is not common, but occurs occasionally.

CYPRIPEDIUMS: *E. W. D., Penarth.* Thrips and a too moist and close temperature have caused the damage to the Cypripediums. Have the plants carefully sponged over, and the pots and staging cleansed, and afterwards spray frequently with some weak insecticide mixed with water.

CYTISUS: *W. C.* We do not find any insects or worms, but the roots are pot-bound, and whilst the upper part of the soil is moist and compact, the lower portions are dust dry. You should overlook the potting operations.

DONATION: *A. Simeson.* The postal order for 2s. has been paid over to Mr. B. Wynne, 30, Wellington Street, W.C., Secretary of the Royal Gardeners' Orphan Fund.

GRUBS IN CLOVER-SEEDS: *J. S. & Sons.* The specimens you sent us are evidently the larvæ of a weevil, or some other allied species of beetle. Before we can advise you on the mode of destruction, you must send us full particulars of the nature of the attack, together with injured samples of the seeds.

INDIA-RUBBER PLANTS: *R. G. W.* The plants may be suffering from gas fumes; or the soil in the pots may have got into an unhealthy condition from being kept for several years in the room; from bad drainage, &c., and requires replacing with fresh soil. Repot at the present season; and if you have no forcing-house or stove, get a florist or nurseryman to put them into a warm house for a couple of months.

JOURNEYMAN GARDENER: *G. H.* A journeyman living in a bothy is entitled to at least a week's notice before dismissal, unless he be guilty of a misdemeanour; and his employer may demand the same notice. We do not think it is considerate for an employer to deduct money from wages paid to such a journeyman, who does night and Sunday duty, because he happened to be five minutes late in turning out on a particular morning. If he is frequently late, the employer's remedy should be found in giving legitimate notice of dismissal. Young gardeners, like all other young men, are the better for being taught the importance of punctuality and discipline, but the teaching should be done in a proper spirit.

LEAVES TURNED BROWN IN PLACES: *F. N.* Due to errors in cultivation, such as lack of ventilation, too much moisture in the soil, cold draughts, &c. No fungus.

NAMES OF FRUITS: *J. C. W.* Apple Beauty of Kent.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*M. F.* Rhododendron dahuricum.—*H. S.* Dodecatheon Meadia.—*Herts.* Andromeda (Pieris) floribunda.—*F. S. R.* Sisyrhynchium grandiflorum.—*G. D. W.* Pieris (or Andromeda) floribunda.—*W. H. Y.* Pieris (or Andromeda) floribunda.—*A. R.* 1, Leucoium vernum; 2, Helleborus fœtidus; 3, Corydalis tuberosa.—*C. W. W.* 1, The Jonquil, N. Jonquilla; 2, Narcissus Sir Watkin (small).—*E. W. D., Penarth.* Polypodium crassifolium, a Fern.—*A. J. R.* Hoffmannia Ghiesbreghtii variegata; sometimes seen in gardens under the names of Higginsia and Campylobotrys.—*F. B., Sussex.* The Cypripedium is of a cross between C. Boxalli and C. exul; it is nearest to the C. × villexul lately flowered by Mr. R. I. Measures; 2, next week.—*H. L.* Cattleya amethystoglossa; also called Cattleya guttata Prinzii.—*C. B.* Brassavola Perrini.—*Zola.* 1, Odontoglossum × Andersonianum; 2, Begonia smaragdina; 3, Nanodes Medusæ, now generally included under Epidendrum.—*F. C.* 1, Aglaionema Manni; 2, Dendrobium Pierardi; 3, Odontoglossum pulchellum; 4, Adiantum cuneatum; 5, Eupatorium Weinmannianum; 6, probably Forsythia viridissima.—*Lamberhurst.* Dendrobium aggregatum majus.—*G. T. F., Cardiff.* Both good varieties of Dendrobium nobile, but neither large enough for D. n. nobilius, if fully developed.—*Land.* 6, Alyssum maritimum; 7, Acacia, species doubtful; 8, Euryops virgineus; 9, Acacia, species doubtful; 10, Cerastium glomeratum.—*A. R.* Conoclinium ianthinum.—*E. M.* Probably Hottonia palustris, out of character.—*R. W. R.* We only know your plant as the double Lilac-Primrose. Yours is a good specimen of it.

NURSERY BUSINESS: *A. M.* We are unwilling to take the responsibility that a definite answer to your question would entail upon us. It is, however, a matter of common knowledge that in this country there are not now such opportunities for establishing new businesses as exist in many of the colonies. From your letter we conclude that you possess a good knowledge of your business, and having a capital of £400, you would be likely to succeed well in South Africa, where there will doubtless be considerable horticultural and agricultural development, including extensive planting of trees. In the event of you emigrating to one of the South African colonies, it will be advisable to engage yourself to some nurseryman out there until you obtain a knowledge of the local conditions.

RICHARDIA ÆTHIOPICA: *J. G. & Sons*, and *J. B.* Your experience is very different from ours. Scarcely a week passes but what we see the leaf assuming the white colour of the spathe.

SHAMROCK: *W. J. A.* and *C. C.* Trifolium minus. See an elaborate article in our columns on April 7, 1900, p. 222.—*S. J. E., Bristol.* What you send as Shamrock, is an Oxalis, which will grow perfectly well in England.

STRAWBERRY FOLIAGE DISFIGURED: *P. H. R.* Mildew; dust the plants with flowers-of-sulphur, or dip them in a solution of sulphide of potassium (liver of sulphur), half ounce to one gallon of water. Keep them away from healthy plants.

WEEVILS AMONGST FERN-ROOTS: *X.* It is an easier matter to catch the beetles than it is to kill the maggots in the soil, without causing injury to the Ferns. The present season being a suitable one for the purpose, we should be disposed to remove the plants from the pots, and try to pick out all the grubs in the old soil, and destroy them. Then repot your Ferns into compost you know to be free of the pest. If the beetles afterwards visit the plants, stand the pots all together upon a sheet spread in their usual house; then towards midnight go to the house, taking a bright light and a bucket of boiling water with you. There will be numbers of the beetles upon the sheet, which should be gathered up with as little delay as possible, and immersed in the boiling water. If you find many of the beetles escape, you may put tar or other sticky substance upon the sheet; this will give you more time to remove the pots and gather the sheet together. Repeat the operation frequently.

COMMUNICATIONS RECEIVED.—P. T.—W. G. G.—G. F.—N. D. (with thanks)—T. H.—G. W.—A. B. S.—J. N.—S. C.—E. E. R.—J. W.—C. E.—R. R. L.—H. M.—O. T.—G. F. H.—R. P. B.—J. B. (telegram and letter with thanks).—Windsor Hort Soc.—R D.—Nat. Auricula and Primula Soc.—Brighton Hort. Soc.—A. W. Whitelaw—W. A. C.—E. C.—G. W.—J. H., Duns—T. H. S.—W. C.—Leach (next week)—S. G. B.—A. D.—Comte de K.

A View showing part of the Duchess' Garden, Belvoir Castle, Grantham: photographed by F. Mason Good.

THE
Gardeners' Chronicle

No. 848.—SATURDAY, MARCH 28, 1903.

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"VIOLETS OF ALL SORTS."

—*Tusser.*

IF the early records of the Violet were accepted in a too literal sense, its use as a medicinal agent or as a food would lead to the inference that the early Englishwoman was a too devoted utilitarian to have any room in her constitution for mere sentiment. But it is more pleasing to think that the Violet, though estimable in its way as the constituent of a salve, or a remedy for headache or neuralgia, or even as an ingredient in the universal pottage so dearly loved by the old-time Englishman, was at the same time no stranger in the plot of pleasant flowers. One of the marked characteristics of mediæval times was the strong liking for aromatic and sweet-smelling flowers, and we may be sure the Violet was not forgotten among these. At the same time, there is no room to doubt that the Violet is indebted to Shakespeare for its position. He it was who published its perfume—

"Sweet thief, whence didst thou steal thy sweet that smells,
If not from my love's breath?"

Its purity—

"From her fair and unpolluted flesh
May Violets spring."

Its fragility—

"Forward, not permanent; sweet, not lasting;
The perfume and suppliance of a minute—
No more."

The Violets Spencer painted were of a less noble type. He needed "Primroses greene" to "embellish the sweete Violet." Milton calls it the "glowing Violet," and misses the plant altogether. In the routine of daily life the flowers were used for strewing sometimes the bridal bed—"Lay her in Lilies and in Violets"; sometimes the grave—

"And Violets, and every kind
Of flowers, about the grave
They strawe."

In the garden, along with Camomile and other sweet-smelling flowers, Violets were planted on seats and banks; nor is it at all improbable that Shakespeare had an artificial bank of this nature in view, "Where Oxlips and the nodding Violets grow"; and certainly so, the bank of Violets in *Twelfth Night*.

In *The Countrie Farme* and works of a kindred nature, recipes are to be found of methods of preserving the flowers of Violets "for salad to serve all the year." Syrups, conserves, and sugar-plates, composed of Violet flowers and sugar, were in much request for lung affections, coughs, and agues, and in every case it was essential to gather the flowers early in the morning previous to sunrise, in order that the virtues and sweet smell should be preserved.

In ancient vocabularies, Viola is translated Banwyrt, Hofe, Appel-leaf, and a few more names not applicable, as for example, "Clover," which would appear to refer to the cut-leaved form of Viola tricolor; but by the time Turner initiated the recording of English plants and names, it was recognised simply as a Violet. On the other hand, quite a large number of plants other than the Violet bore the name, and some without possessing the slightest resemblance to justify the application. Thus, Spanish Violet at one time was popularly applied to Lupinus luteus, both Parkinson and Cole mentioning the fact. Several campanulate flowers also acquired the name, but from a Latin source. Thus, Gentiana pneumonanthe was widely recognised as the Calathian or autumn Violet, and the spring Gentian the blue Violet. Viola Mariana in the same way became Marie or Marian Violet, and Mercurie's Violet, and is Campanula medium. The pretty Campanula hybrida is the Corn; and the yet prettier Specularia speculum, the Five-cornered Violet. Then of bulbous Violets there is the Snowdrop, also called Narcissus Violet, and the Leucoiums or Snowflakes. One can sympathise with Turner in his search for appropriate names, when he calls Cyclamen europæum the Rape Violet, at the period fairly descriptive of the plant, for then and long afterwards Rape was applied to the Turnip, and Violet was not at all inappropriate. It is, indeed, one of the old-fashioned names that we could ill afford to lose, the more so when its botanical equivalent is all we have left. The Dog's Tooth Violet (Erythronium dens-canis) has a general appearance to the last-named, though it is the root that is the distinguishing part; just as with Dentaria bulbifera, the scaly roots are the medium by which it has acquired the same name. It has also been called merely Toothed Violet. The last-named brings us in touch with the Crucifers, some of which are Violets, but I think in every case from a directly Latin source, just as the Dentaria is. Nor was the designation confined to England, for we find it current in forms modified to the speech of the several countries, in all the chief European nations. Lyte explains that, "under the name of Viola in Latine are commonly comprehended all sortes of floures which be anything like Violets"—meaning Viola alba (Matthiola incana) and V. lutea (Cheiranthus Cheiri), the former the white Violet and Guernsey Violet, the latter the yellow and tree Violet. Other plants of this group comprise Hesperis matronalis, rejoicing in a varied assortment of epithets, e.g., Queen's, Rogue's, Dame's, Damask, and sometimes Guernsey Violets. When Lunaria biennis was introduced to the notice of botanists it was dubbed the Strange or Foreign Violet but Gerarde, in addition to the name applied to the flowers, supplies a long list of names derived from the white membrane separating the flat seed-vessels. These are "Penny-floure or Money-floure, Silver Plate, Pricke Songwoort; in Norfolke, Sattin and White Sattin and among our women it is called Honestie." Honesty is still its common name, but they are mistaken who ascribe its imposition on account of some supposed virtue possessed by the plant of instilling honesty into the minds of its cultivators. The name refers to another kind of honesty, and is indeed merely the popular name of a membrane which the white dividing wall of the depleted seed-vessel of the plant resembles. To Parkinson we are indebted for the knowledge of its tubers having been eaten, though their use seems at no time to have been extensive. Hottonia palustris, the Water Violet, derives its common name from the appearance of the flower to the Crucifers. Pinguicula vulgaris is the Irish or Marsh Violet; and among other plants, the Lily of the Valley may be mentioned as one that narrowly escaped being a Violet!

Reverting now to the true Viola of botanists, we discover among the numerous names of the Pansy those of Horse Violet, three-leaved and Trinity Violet, Autumn Violet, and the less Violet. Of these, the two last are of peculiar interest. The latter is also called Banwyrt and Mygelwort in *Medical Workes of the XIV. Cent.*, and at first sight Gentiana pneumonanthe would appear to be the plant. But it negatively was of so little importance in medicine as to be thrust among the other Gentians for its virtues, and among these the "conglutinating" of bones is not to be found. The plant is really the variety of Viola tricolor, distinguished by botanists as "arvensis," and good descriptions of what early French writers call "grosses and menues pensées," are to be found in Liebauld's *La Maison Rustique*, and De Serres' great work on agriculture.

In the *Countrie Farme*, Menue Pensée is translated Autumne Violet, from its flowering late in the year, and its value as a bone-wort is fully described. As banwyrt, the old form of bone-wort, it occurs in the oldest vocabularies along with the common Violet and the Wallflower, the latter being called Viola aurosa. This and the Pansy have an altogether curious relationship, for not only were they described as Banwyrt, but they were both known as Tree-Violets, a name that the Wallflower still retains in France.

Moreover, the two plants had medicinal properties in common, and in due time, as the Wallflower lost its relationship with the Violets, its old name of Heartsease was transferred to the Pansy. As a garden plant, the Wallflower seems to have an older standing than the Pansy, but neither so extended a one as the Violet.

These, I think, are the more interesting of our Violets, but it must not be supposed that the list is by any means exhausted. The yellow Violet (Viola lutea) of Gerarde is interesting as having been confounded with the Wallflower, and of late years as being, with Viola amœna, the earliest forerunner of our somewhat unhappily named bedding Violas—a noways strange instance of setting aside a common designation for one more pretentious, and certainly less felicitous. *R. P. Brotherston.*

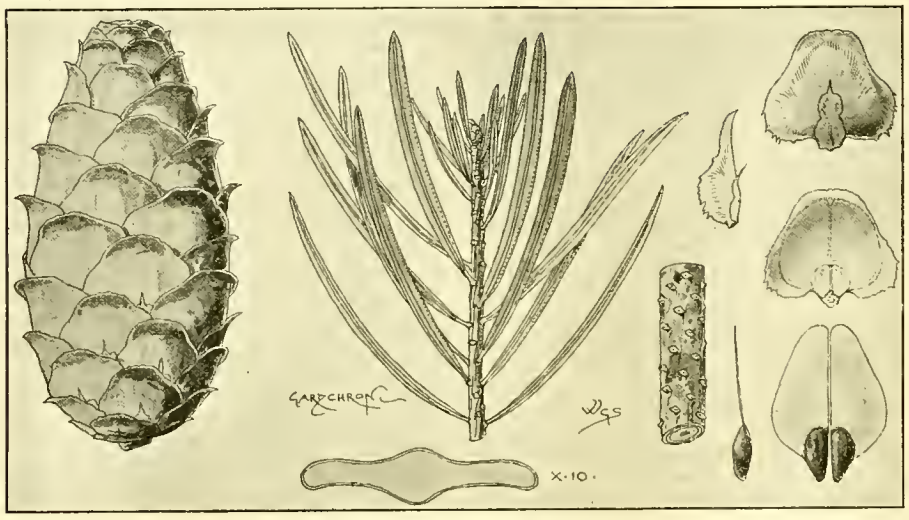

FIG. 82.—KETELEERIA EVELYNIANA.

To the left a cone; in the centre foliage and leaf-section; to the right, portion of branch showing leaf-scars; cone-scales as seen from the back, front, and side; winged seeds all real size except the leaf-section, which is magnified 10 diameters.

CHINESE CONIFERS.

KETELEERIA EVELYNIANA, *Mast., sp. n.**—At the request of Mr. Henry, the discoverer of this new and undescribed species, we have appended to it the name Evelyniana (fig. 82). This name will serve to commemorate a friend of Mr. Henry, and at the same time to bring to memory the services to arboriculture of John Evelyn.

"This beautiful new Keteleeria," writes Mr. Henry, "so far as I know, occurs at one spot only on the side of the mountain which forms the southern border of the wide gorge of the Red River at Yuanchiang, in Yunnan, where there are five or six trees at about 4,000 feet above the level of the sea. Yuanchiang lies midway between Mengtse and Szemao, at about eight days' march from either place. I first saw the tree in February, 1898, while on the march to Szemao from Mengtse, and obtained then two cones, all that remained on the trees. I expected to find the tree further south, but during the year and a half that I was stationed at Szemao, neither myself nor my collectors saw any trace of it in our numerous and distant excursions. I sent natives several times to get specimens, but they never succeeded till, just as I was on the point of leaving Yunnan, a coolie brought me the specimens from Yuanchiang which you have now in your hands.

"In October, 1899, I repassed the group of Keteleerias at Yuanchiang while on my way back to Mengtse, but saw no cones on the trees. This was very unfortunate, as I was desirous of introducing the tree into cultivation. The trees were about 30 feet in height, and their aspect was singularly handsome, owing to the colour of the foliage. It is a much prettier tree than K. Davidiana, which is common enough in Yunnan. With regard to the rarity of the tree, I may remark that it is not an isolated fact, e.g., Magnolia Henryi, a tree occurring near Szemao was only seen once; again, a new Bombax only exists, so far as I know, in a single specimen. Chimonanthus nitens, of Oliver, was only found by me in one of the ravines off the Yangtse gorge above Ichang, [but] only two or three shrubs [were] seen in a single locality, and Mr. Wilson never met with it. It is possible that some species are very nearly on the point of extinction. However, with regard to the Keteleeria, the mountains about Yuanchiang were only partially explored by myself and my collectors, and from certain indications I believe they are very rich in new species quite distinct from those of the Szemao and Mengtse districts. This Keteleeria may be met with further east and west of the point where I saw it. I may add that Archangiopteris, a remarkable new genus of Marattiaceæ (Ferns), in spite of all our researches, was never seen except in one bit of forest. It is very likely a type that is dying out."

To the above interesting account a few descriptive notes may here be added:—The branches are glabrous, shining, brownish-orange, marked with rhomboidal leaf-scars, from the sides of which descend shallow vertical furrows. The glabrous leaves are about 1½ in. long, ⅛ in. wide, linear, rather obtuse, apiculate, arcuate, entire, tapering at the base into a very short twisted stalk, and with the midrib prominent on both surfaces. The cones are, as it seems, ascending or erect, about 2 in. long, 1¾ in. wide, cylindric, obtuse, narrowed at the base. Bracts less than in., coriaceous at the base, membranous above the middle, oblong-acuminate. Scales leathery, brown, nervoso-striate, oblong-ovate obtuse, slightly recurved at the entire or crenulate margins. Seeds obovoid, with an obliquely-oblong wing, much longer than the seed itself.

The present species differs from its allies in its long, slender, acute leaves, only slightly sulcate on the upper surface, and with the midrib prominent on both surfaces. The cones also are much smaller and more tapering at the base.

The four species of this genus at present known may be thus distinguished, but allowance must be made for considerable variation in the length of the leaves and size of the cones.

Leaves sharply pointed, midrib prominent on both surfaces.

- leaves 30—40 mill. ... ... / cones 8—9 cent. ... ... / cone-scales orbicular ... } FORTUNEI.
- leaves 40 mill. ... ... / cones 5—6 cent. ... ... / cone-scales narrowed towards the apex ... ... } EVELYNIANA.

Leaves obtuse or retuse.

- midrib prominent on the lower surface only:—
  - leaves 20 mill., deeply furrowed above ... / cones 5 cent. ... / cone-scales roundish. } FABRI.
- midrib prominent on both surfaces:—
  - leaves 30—50 mill., slightly furrowed above ... ... / cones 15—12 cent. ... / cone-scales narrowed towards the apex... } DAVIDIANA. (including K. sacra.)

Maxwell T. Masters.

* *Keteleeria Evelyniana, Mast. sp. nov.*—Arbor: ramis glabris brunneo-aurantiacis; foliis glabris 4—5 cent. long., 2 mill. lat., linearibus arcuatis-obtusiusculis, apice apiculatis, basi vix petiolatis tortis, nervo medio utrinque prominente; flor. masc. haud visis; strobilis ascendentibus 5—6 cent. long., 3½ cent. lat.; cylindrato-oblongis basi sensim angustatis; bracteis oblongis acuminatis basi sub coriaceis, supra medium membranaceis; squamis bracteis duplo longioribus coriaceis ferrugineis oblongo-ovatis marginibus integris seu parum erosis recurvatis; seminibus cum alâ squamis parum brevioribus, obovoideis, alis seminibus ipsis duplo triplove longioribus oblique oblongis, margine uno rectis altero curvatis.

Ad montes prope Yuanchiang in prov. Sinens. Yunnan, ubi, anno 1898, legit cl., Henry!

SOUTH AFRICA.

(*Continued from p.* 14.)

THURSDAY, JANUARY 22, 1903.—I have now reached the region of penny newspapers (Queenstown, Cape Colony); all papers further north of this cost a tickey (threepence), even when they consist of only four pages. In such cases, with the exception of two, or sometimes three, columns of matter, the rest of the paper consisted of advertisements. To one proprietor and editor I remarked, "In your Saturday's edition there are no telegrams." "Well," he replied, "there were some lines come through, but they were of no consequence." I suppose, had he spoken facts he would have replied, "Copy costs money, and occupies space. Advertisements are paid for, and are the publisher's delight, as they enable proprietors to pay better salaries in a country where living and house-rent swamp a small-salaried man."

I fancy my last letter was from under the shadow of the ill-omened "Majuba." Owing to the terrible drought which has prevailed in the Transvaal and Orangia, and the eastern parts of Cape Colony, I have little to record in the flower line. One exception to the rule was at Vlakfontein; here the veldt was rich in many species of bulbous plants. The man in charge of 6 miles of the permanent way of the Netherlands Railway was settled at this spot, and dealt off to me one of his coolie labourers, a very intelligent, sharp-eyed man. As soon as he grasped my object, he was all alive, and when we reached a copje he was in amongst the rocks using freely his pick, and bringing me bulbs I did not want. When we came to others I did want, he did not spare his muscle and his pick, and thus I was able to collect a few more of the pink-flowered, black-spotted leaf Scilla I had found on Majuba; the bulbs were as large as those

of Hyacinths. Here I found species of Albuca, and some other plants, and no doubt might have found many more, but time was against me. Returning to the railway-man with my spoil, I found he was a bit of a landscape gardener. His own garden he had laid out nicely, and had also laid out his neighbour's garden. His wife complained, although the garden was laid out nicely, that there were no flowers in the beds. With the help of the coolie, I planted the corners of one bed with the spotted-leaf Scilla, and advised the wife to see that the man collected other and different bulbs from the veldt, and so treat in the same way the corners of all the other beds. For the centres of the other beds I promised a supply of seeds from London, the idea of which made my good friends very happy.

My next stoppage was at Heidelberg, a pretty place enough. I scoured the veldt for miles round, and saw a few ground Orchids, but little else. My next move was to the golden city of Johannesburg, where I spent a week. The most notable man I met there was Sir Percy Fitzpatrick, who was strong on Chinese labour, showing that with a plentiful supply of labour, one white man could be employed to every four coloured labourers, whether black or yellow. Johannesburg, like most of the western towns of the United States of America, is in the making, and with prosperity will be a great city. I saw from Sir Percy's house some well wooded land in the distance, and was told the trees were not yet twelve years old. This is a start in the direction of covering the waste lands of the Transvaal and Orangia with trees, which may favourably affect the climate, and if they do not, they will be an important asset when the destruction of trees the world over brings that wood famine some wise men predict as likely to take place in fifty years, and others in one hundred years. Few flowers are to be seen around for miles from the golden city. I went out to a place where are some settlers on the land under the direction of a Tasmanian; an Englishman gave me a lift in his cart, and wanted to drop me down at the settlement, but I assured him I would rather go to his farm, which was near by, as I had had a poor breakfast, and should be glad of a up of coffee. This gentleman was one of our volunteer warriors, and wanted to settle in South Africa and start a dairy-farm to supply Johannesburg with milk, if the Government would give him a little assistance. At the Tasmanian's house I was regaled with a good dinner of canned meat. I then visited a Dutch farmhouse, had coffee, and returned to the settlement, had tea and a chat, and was driven to the railway station, arriving in time to see the last train leave. I slept on a bench in the waiting-room; the following night I missed the last train to Johannesburg, but, by permission of the black carriage-cleaner, I was allowed to sleep in a first-class carriage on condition that I did not spit on the floor! *P. Barr.*

(To be continued.)

A HOME-GROWN BAMBOO.

Some readers of the *Gardeners' Chronicle* may remember mention of a Bamboo, Phyllostachys nigro-punctata, having flowered in the gardens here three or four years ago. The same plant produced a large number of seeds, and a considerable quantity was gathered, when it was thought they were ripe, and balanced somewhat heavily in the hand. At the same time the leaves of the branches, which are smaller in size during the time the plants are in flower, or are producing seeds, were beginning to look withered. My employer thought this a good time to gather the seed, and two or three branches were cut and laid for a little time on some lights of a propagating-case in a stove temperature. Another branch was sent by desire to Mr. George Nicholson, late of Kew Gardens.

After an interval of a few days, on the branches being shaken briskly, the seed-vessels easily fell away. These were sown without delay, somewhat thickly, in rich sandy soil, in well-drained seed-pans; the surface was strewn with a little charcoal, and the pans were then placed in a warm temperature over a water-tank, allowing the water to cover the bottom of the pans and crocks. The soil was thus kept moist with but one watering. At the end of eight days two small grass-like leaf-blades showed themselves. Truly a very small percentage, for these two plants were the sole result of a big sowing.

The seedlings grew away healthily and well the first year, in the same warm temperature of 70° to 80° during summer, 55° to 60° in winter. In the spring of 1901 they were potted into 5-inch pots, and placed in a house having a cooler temperature, where they grew strongly. Last year traces of parentage were seen, and the plants being vigorous, were placed in prepared beds, where they appear to be doing well in the out-of-doors temperature. It will be interesting to watch the future development of these seedling Bamboos. Through what particular agency our P. nigro-punctata became fertile is at present doubtful. Pollen-dust was noticeable on our flowering Boryana when shaken during its latter stages; but as Arundinaria Simoni flowers regularly here of late years, some assistance by insects may have helped to impregnate the flowers of nigro-punctata by pollen from the Arundinaria. This idea is questionable; but such a small percentage of fertile seeds, makes one think of outside agency in the fertilising of the parent plant.

After producing quantities of seed-vessels on every branch, P. nigro-punctata, barely more than 6 feet high at the time of flowering, gradually dwindled each year, producing only a few small green leaves until last season, when no vestige of life remained in it. Arundinaria Simoni having a greater tendency to perpetuate itself by making rhizomes underground, is more lasting and tenacious of life after flowering than the rarer Bamboos of the genus Phyllostachys, &c., which are more compact in their growth, at least, in this country, and are not half so free in sending out creeping rhizomes as are A. Simoni, A. japonica, A. Veitchi, Bambusa palmata, B. quadrangularis, &c. *J. Benbow, Abbotsbury Castle Gardens, Dorsetshire, March 16.*

WEST INDIES.

ORNAMENTAL GARDEN PLANTS IN TRINIDAD.

Perhaps a few notes regarding Trinidad would be of interest to some of your readers, although decorative gardening is not pursued here to a great extent. Some of our finest decorative plants are climbers. At present, Porana paniculata is a fine spectacle growing on an arbour. It is covered with long sprays of small pure white flowers, and I believe would be in great demand for bouquets or vases if it grew so well in an English hothouse. Amongst other climbers common with us are Antigonon leptopus, Solanum Wendlandi, Clitorea Ternatea, Passifloras, Odontodenias, Bignonias, Thunbergias, and Ipomœas. Ipomœa Horsfalliæ is a general favourite, but there are many beautiful species of Ipomœa growing wild in the bush.

Bougainvilleas grow luxuriantly. We have one plant of B. spectabilis var. lateritia occupying most of the upper branches of one of the largest trees in Government House gardens. When viewed from one of the hills near Government House it forms quite a feature in the landscape, with its brilliant red bracts. This variety is difficult to propagate with us. Our surest method is layering. We procured some seeds from one of our young plants last year, but none of the seedlings have produced flowers with red bracts, all being a deep mauve or magenta shade.

Acalypha hispida (Sanderi) makes a good bedding plant, and also looks well at the sides of shrubberies. Ixoras, Tabernæmontanas, and Hibiscus are amongst the best of our flowering shrubs. Leptactina Mannii flowered here this year. The plant was received from Kew about two years ago, and is about 3 feet high; there were thirteen heads of flowers, and six to eight flowers on each head; these were star-shaped, about 3 inches in diameter, and pure white. The species is a distinct acquisition to our collection of flowering shrubs.

Petræa volubilis is a small tree, commonly called "Lilac" here on account of its resemblance to the English tree of that name. As in the latter, also, there is a white variety, which is very pretty. The type bears flowers of a blue or blue-purple colour, and the tree is covered with flowers three to five times in one year.

The commonest plants for hedges are Codiæums, of which there are many varieties. Hibiscus Cameroni, Aralia Guilfoylei, Panax Victoriæ, Pedilanthus padifolius, and Euphorbia canariensis, are also used for hedges. The last species is the commonest and most effective as a barrier around gardens or estates. Pieces about 2 feet long roughly planted in the ground soon take root, and in two years a hedge may be formed 4 feet high, and if thickly planted, as is usually the case, will be quite impenetrable to anything larger than a cat.

Our commonest Orchids are Oncidiums, Catasetums, and Epidendrums. Diacrium bicornutum grows only on the shores of some small islands near the northern mouth of the Gulf of Paria, and the shores of Trinidad and Venezuela, opposite those islands. In the month of February, the bright green vegetation which reaches to the water's edge, has quite a star-spangled appearance, due to the white flowers of the Diacrium which are so common there. They grow mostly on small trees, which have very few leaves on their branches when the Orchids are in flower. I have also found them growing amongst vegetable débris on the rocks overhanging the water.

The Banana is our commonest fruit. Next in popularity is the Mango, the common varieties of which are, however, not agreeable to the European palate; but we are grafting and planting several very delicious kinds, some native, some from Martinique, and others East Indian. We have imported a collection of grafted Mango-plants from India, through the Royal Gardens, Kew, and thirteen of these have been planted permanently, and are growing very well. From these we hope to further increase our stock of delicious varieties of Mangos. *Wm. Leslie, Senior Agricultural Instructor for Trinidad, December 2, 1902.*

RICHARDIAS.

M. J. K. Budde, Director of the Botanic Garden, Utrecht, has obligingly sent us an illustration, which we regret is unsuitable for reproduction, of the variety of Richardia africana, shown by Messrs. De Graaff, Ltd., of Leyden, at a meeting of the Royal Horticultural Society on March 10. In doing so our correspondent writes:—"Messrs. De Graaff, Ltd., of Leyden, confuse species with varieties. I quite agree with the editor that Richardia africana var. Childsiana is only a variety, but at the same time a very useful variety. R. africana Childsiana is a profuse bloomer, robust in growth, and received on March 5, 1902, from the Dutch Horticultural Society a First-class Certificate. Messrs. Den Older, Bros., at Leyden, make a specialty of this Aroid. *J. K. Budde.*"

THE ROSARY.

FORTUNE'S YELLOW AND CRIMSON RAMBLER.

I was greatly interested to read Mr. Fyfe's remarks on p. 178, respecting Fortune's Double Yellow Rose, but as my experience differs so materially from that he described, I beg that this letter may be published, in order that Mr. Fyfe may be able to reply, and thereby help many readers, including myself. I have only one plant of this Rose; it is planted in a narrow border in front of a lean-to house, the border being 2 feet wide by 2½ feet deep, and the plant is trained up the roof. I fully endorse Mr. Fyfe's remarks about the freedom of this variety from mildew, its vigour of growth, and gracefulness of foliage; but here we diverge, for instead of thousands of buds annually, I have only got two Roses in five years. My plant grows splendidly, every season making strong growths, 3 to 9 feet in length; those I always retained at pruning-time, merely cutting out the growths that were made the previous season, but paying due regard to the disposal of the shoots so as to admit the necessary light. All to no purpose; flower it will not, and I have at last given it up as hopeless. The suggestion has been given to me that the roots should be entirely outside and exposed to the weather; but as the greenhouse is never heated except to exclude frost, I consider this unworthy of any notice. I have had no former experience with this Rose, and after hearing many glowing accounts, I had some suspicion that my plant was not true to name; but the flowers it produced two years ago corresponded exactly with Mr. Fyfe's description. I do not know whether the plant is on its own roots or not, but it makes capital growth, and never flowers, while in the same border Catherine Mermet, Niphetos, Maréchal Niel, and other varieties flower freely.

I have had a perplexing experience also with a better-known Rose, Turner's Crimson Rambler. We have several plants in various positions in the garden, but chiefly on wire arches over the pathways; for three years after planting they made enormous growths, 15 to 16 feet long, and at the base these were certainly thicker than my finger; not one only, but three and four to a plant equally good, and many others of various lengths. I pruned them just as I have done Fortune's Yellow, and they flowered splendidly—both flowers and growth were the admiration of all who saw them; but quite suddenly three or four of our best plants ceased to grow, and have gradually died away. I consider our soil is very suitable for Roses, and we certainly get capital Roses without any feeding whatever. The position is only a mile or two from the famous Rose nursery of Harkness & Sons, and the soil is probably similar to theirs. If any rosarian can help me in this difficulty, I shall be obliged. *R. M. Dewar, Hinderby Hall Gardens, Northallerton.*

Pruning and Pegging Down Dwarf Roses.

Pruning growing Roses in the open air is an important item in their cultivation, requiring much skill and judgment. In the southern and western counties, H.P.'s may be safely pruned during the months of February and March, and during April in the case of the hybrid and Tea-scented. There is a difference in temperature of several weeks between North and South Britain, and in pruning, this fact must be taken into account. It is good practice to shorten a few buds only at first, leaving the final pruning till the middle of March; and for Teas, the first or second week in April. The more gradually the pruning is carried out, the longer will the blooming season be prolonged. The weaker growers among H.P.'s may be pruned to four or five buds during March, and any immature shoots cut out. Stronger growers are better not pruned so hard, and in both cases always to an outward-growing bud. Keep the centre of the crown open. Where abundance of bloom is the object in view, pegging down has its advantages; but vigorous varieties, having long, well-ripened rods, should be selected. Amongst others, these will be found very suitable for the purpose, viz., Duke of Edinburgh, General Jacqueminot, Madame Eugène Verdier, Ulrich Brunner, Dupuy Jamain, Marchioness of Dufferin, Victor Verdier, Sénateur Vaisse, and Madame Gabrielle Luizet. Hooked pegs 9 inches to 1 foot in length, should be provided. Each rod should be bent down to the horizontal position, and within a few inches of the soil, and be made secure with a peg or two pushed into the ground, which will cause all the latent buds on the rod to break, and eventually produce flowers the whole length; whereas in the ordinary method of pruning a great deal of the wood which would produce blooms, if left, is cut away. Well-ripened shoots left in the centre of the plants, if not of sufficient length to peg down, can be pruned to three or four buds, and these will flower later. Only strong-growing varieties of Roses should be employed, as, for example, Fellemberg Noisette, and others of that class. *J. D. Godwin.*

KEW NOTES.

Clerodendron myrmecophila.*—This new species is now blooming in the stove division of the T-range, and is evidently a good garden plant. The two specimens in bloom are in 6-inch pots, and are less than 2 feet high, including the pots, yet the panicle of bloom itself has a length of 7 or 8 inches. The leaves are oblong, lanceolate, and less deep green in colour than upon the plants growing under natural conditions, as described by Mr. Ridley. The inflorescence is erect, pyramidal, and very showy, and the calyces, pedicels, and branches are covered with short, reddish hairs. The general effect of the inflorescence is obtained from the front of the lobes of the corolla, which is of bright orange colour. The red or crimson stamens are very long and slender, inclining upwards, and bear blackish anthers. The species was introduced to Kew from Singapore, where it was found in dense wet woods in Choa-Chu-Kang, but only in one jungle. Mr. Ridley describes the plant as growing about 3 feet high, and as being an unbranched or few-branched shrub. Being allied to C. fistulosum, the internodes are dilated, and, except when quite young, hollow. A species of Ants (Pheidole) make their home in these internodes. This characteristic is even observable in the small plants at Kew, the lower part of the stem being already slightly dilated. It is a very showy plant, and produces a wonderful number of flowers without requiring much root-room. Judging from its native habitat, the plants will require a very moist and hot atmosphere.

In the stove may also be seen in flower Clerodendron splendens and C. Thompsonæ, trained to rafters; and Brunfelsia calycina var. macrantha. In the adjoining Nepenthes-house the effect of the moment is principally due to N. × mixta, N. Rafflesiana, N. Curtisii (exceedingly good), N. × Morganæ, N. × Mastersiana, and N. × Dicksoniana.

Early Alpine Plants.

On the 21st inst., the first day of spring, according to the almanac, the rockery was brightened by a number of early-flowering bulbs, that appeared at their very best in the bright clear sunshine of that day. Of the choicer plants in bloom, mention may be made of Daphne Blagayana, Fritillaria aurea, Anemone blanda, Erythronium grandiflorum, yellow, and other species. Berberis × stenophylla was in bud, but not in bloom. The new Fritillaria askhabadensis, exhibited last season by Miss Willmott, was blooming very freely under an east wall in the students' garden, being about 1½ ft. high.

The interior of the alpine-house was a picture of interest and beauty. The stages were filled with plants in pots and pans, chiefly pans, and there was a wealth of bloom. Particularly noticeable were the new Iris warleyensis, with numerous blue and purple flowers; Thalictrum anemonoides, Fritillarias, Iris pumila cœrulea, I. chamæiris var. olbiensis, Shortia galacifolia, Saxifraga apiculata (very effective in mass), Erythroniums, Muscari conicum, Primula denticulata, and Corydalis cheilanthifolia.

Greenhouse Flowers.

In the popular "flower house," No. 4, the display was one of infinite variety. We can only give briefly a list of the principal plants. Cyclamens, Primula sinensis, including a batch of plants of Messrs. Sutton's new variety "The Duchess;" double and single Wallflowers, a single one known as Vulcan being very effective; Rhododendron (Azalea) indicum in variety, Cytisus fragrans (racemosa), greenhouse Rhododendrons, Richardias, Acacia obliqua, A. armata, A. pendula, Lily of the Valley, Chorizema splendens, Roses, Coleus thyrsoideus, Narcissus, Eriostemon myoporoides, Geijera parviflorum, Begonias, Abutilon megapotamicum variegatum, Salvia Heeri, one of the best of the genus, flowers scarlet; Eupatorium petiolare, having beautiful white flowers, ½ inch across; E. ianthinum, with larger mauve-coloured flowers; Spiræa arguta (white-flowering shrub), Cinerarias, Tree Pæonies, Cestrum (Habrothamnus) elegans, and the rather deeper coloured C. Newelli, Pyrus floribunda, Kerria japonica, fl.-pl.; Deutzia gracilis marmorata, Agapetes buxifolia (see fig. in *Gardeners' Chronicle*, March 31, 1900, p. 197), Pentapterygium serpens, Hippeastrums, in exceedingly charming seedling varieties; Camellias, Amorphophallus Rivieri, already fading, spathe 3 feet high; Veronica diosmæfolia, hardy in very warm localities, but pretty as a pot-plant, and suitable for room or table decoration, having numerous tiny white flowers; Primula × Kewensis, Hyacinths, Epacris, Clianthus puniceus, Boronia heterophylla (very good), and Wistaria sinensis.

The Orchid Houses.

In the warm Orchid-house the principal attraction consists in the beautiful hybrid Phaius as Norman, Cooksoni, Marthæ, &c., P. Wallichi, and the very handsome Eulophiella Elizabethæ. This plant is a fine specimen in a large basket, and has three excellent spikes of its charming white flowers suffused with pink.

There are species and varieties of Oncidium in bloom, and of Dendrobium, also Burlingtonia pubescens, looking very pretty in a suspended basket. In the cooler division the Cymbidiums were good. C. eburneum, C. Lowianum, and the choice garden hybrid C. × eburneo-Lowianum; Odontoglossums, Masdevallias, Epidendrums, and other species were also in flower. In the adjoining Lily-house a bed had been prepared for sowing the Victoria regia.

Other Plants in Flower.

In the Heath-house were Lachenalias and Sparaxis in bloom, also the new Kalanchoe Kirkii, Veltheimia viridifolia, Dimorphotheca cuneata, with its white, Daisy-like flowers; Hippeastrum pardinum var. superbum, an elegant flower of bright red colour with green base.

In the Begonia-house, the Ardisias still carry plenty of berries, and amongst plants in bloom are Thyrsacanthus rutilans, the blue-flowered Dædalacanthus nervosus, Ruellia amœna, Eranthemum gracillimum, pale blue in colour; E. albi-

* *C. myrmecophila.*—H. N. Ridley, in *Journal of Botany*, 1895, p. 42.

flora, with deep green leaves and erect spikes of small white flowers; Pentas carnea, Porphyrocoma lanceolata, Jacobinia coccinea, Plumbago rosea, Centradenia floribunda, and C. inequilateralis. The Arisæmas have commenced to make a show, and there were several plants in bloom of Amorphophallus variabilis, a small-growing species of this interesting genus.

The principal attraction during the past week in the temperate-house has been the beautiful large plant of Rhododendron ciliatum, just inside the doorway of the Himalayan division, literally covered with its white or blush-tinted flowers; Rhododendron racemosum, pink, a hardy species, suitable for the rockery; the hardy Loropetalum chinense, large standard plants of Sparmannia africana, large bushes of Magnolia stellata, many species of Acacia, amongst which A. armata is one of the most handsome; and Polygala myrtifolia grandiflora. A tree of Citrus medica Limonum, figured in the *Gardeners' Chronicle*, April 28, 1900, p. 267, is carrying about a dozen fruits.

JASMINUM PRIMULINUM.*

This is a very beautiful new Jasmine, which, should it prove as hardy as J. nudiflorum, will probably supersede that favourite plant. The specimen we figure formed part of Messrs. Jas. Veitch & Sons' exhibit at the last meeting of the Royal Horticultural Society, having been introduced to their establishment by their collector, Mr. E. H. Wilson. The plant, however, was familiar to us in the shape of dried specimens, and a figure of it was given in Hooker's *Icones*, t. 2384 (1895), with the following description from Prof. Oliver:—"Excepting in the larger leaves, sometimes fairly, if not fully, developed at the time of flowering, and much larger flowers with the limb of the corolla exceeding the tube, this plant might be regarded as a glorified variety of J. nudiflorum, Lindley. It is evidently a very free flowerer, and in the very first rank of ornamental shrubs. Let us hope that Mr. Hancock may yet lay us under the further obligation of securing its introduction into British horticulture. *D. Oliver.*" It is a native of southern Yunnan, and its hardihood may therefore be questioned, but we believe it has already been submitted without injury to several degrees of frost at Combe Wood.

CLARE LAWN, EAST SHEEN.

Amongst the many places around Sheen, "Clare Lawn," the seat of Sir Frederick Wigan, Bart., claims special prominence. Clare Lawn is especially noted for its Orchids, and for the excellent collection of rare varieties it contains. In going through the Orchid-houses the other day, I noted a good many in flower; amongst which were, in the Odontoglossum-house, a good specimen of O. Halli with two spikes, twenty flowers on a spike; O. hystrix, a grand batch of O. Rossii majus; O. triumphans, O. crispum, O. Cervantesii, O. Sanderianum, O. gloriosum, O. spectabile, O. Wilckeanum, the beautiful O. Rolfeæ, with nine or ten charming flowers open; O. excellens, O. loochristiense (a fine spike), and hosts of others showing flower, and all looking in excellent condition. Most of them have been subjected to leaf-mould potting. In another house were some nice pieces of Cymbidium eburneum, C. grandiflorum, &c.

In the warm house was a fine show of Dendrobiums, amongst which were capital examples of D. Wardianum, D. crassinode, D. nobile virginale (pure white), D. Brymerianum, D. nobile, D. primulinum; this latter shows to great advantage, hanging down from the roof, and is highly ornamental. A few good specimens of Cattleya Trianæi were in flower, Lælio-Cattleya Hypatia, and Lælia Jongheana. In the Phalænopsis-house some nice pieces were in flower; P. Schilleriana was very fine, and the collection looked in robust health. Phaius Norman rosea, P. Cooksoni, and P. tuberculosus, were extremely fine.

In the rock house the Cymbidiums were noteworthy, some large plants having upwards of 200 flowers in bud; several plants of C. Lowianum having eight to ten spikes with twenty huge flowers on a spike, when fully developed will be charming. In another house a goodly number of species and varieties of Cypripedium

Fig. 83.—Jasminum primulinum: flowers bright yellow, semi-double.

* *Jasminum primulinum*—Hemsley, in *Kew Bulletin*, 1895, p. 109; Oliver, in Hook. *Ic. Plant.*, 4 ser., vol. iv, 1895, tab. 2384.

was in flower, including several seedlings and the lovely C. Niobe and C. niveum. A fine batch of Miltonia Roezlii was in flower, and a lot of Masdevallias in variety. I think there are ten houses devoted to Orchids, of which Sir Frederick Wigan and his able grower, Mr. W. H. Young, may justly feel proud.

In the other houses devoted to miscellaneous collections are greenhouse and stove plants, of which numbers are grown for house and church decoration. In one house we noticed a good batch of Lilies of the Valley, Narcissus, Lilacs, both double and single; the old Kerria japonica, which looks very well forced, and helps to remind one of the spring. In another house was a splendid lot of Cineraria stellata, and the ordinary large flowering variety; and another was devoted to Primulas. Pot Roses and Azaleas and forced shrubs filled yet another.

In the stove are some good Crotons and Dracænas, and the usual decorative plants. Several houses are devoted to Melon and Cucumber culture, all of which looked very promising; as also did the vineries and Peach-houses. The Palm-house was full of nice useful plants in variety, and all sizes. In the Camellia-house were hundreds of flowers and thousands of buds, all looking in the best of health. On the roof are some plants of Lapageria alba and rosea.

In the conservatory is a bright arrangement of plants of all kinds in flower, interspersed with fine foliaged plants and Ferns.

On the lawns are some fine shrubs and trees, some beautiful Almond trees in full bloom, and Prunus Pissardi is one mass of pretty white flowers; some excellent borders of mixed shrubs, Bamboos, &c., make a nice show. A Rose garden here finds a place, and judging by the look of the plants, they have the energy to make a very fine show in due course. On the south side of the mansion, a good flower garden, with its bulbs and spring flowers, bids fair to make a bold show.

In the kitchen and fruit garden, the prospects look equally bright; the Pear-trees, bush and pyramid, are well set with buds, and ready to expand; Apples, also, look uncommonly well, and the trees in good condition.

A good herbaceous border on either side of the centre walk through the garden was beginning to be interesting, and affords much useful stuff for cutting during its season. Other walks have large quantities of Roses and bulbs planted on the borders for a like purpose as at Clare Lawn.

Sir Frederick and Lady Wigan are extremely generous with flowers for charitable and other purposes, and cherish the growing of everything that is good and pretty. Mr. Want, the head gardener, is thoroughly practical and up-to-date, and achieves much and good results in a garden that has many disadvantages, being so near the fog and smoke of London.

I had almost forgotten that there are a good many Peaches grown outside on the south wall with much success, and judging from the appearance of the trees, this season will prove no exception. *W. A. C.*

"CASSELL'S POPULAR SCIENCE."—Under this title, Messrs. CASSELL & Co. are issuing fortnightly a periodical, edited by Mr. A. S. GALT, which is not only attractive, but likely to be very useful. Science is vast and varied, accordingly we find the contents diversified. An article by Mr. W. M. WEBB on the birth and upbringing of an oyster, is sandwiched in between one on the manuagement of the camera, and another on meteors. The mysteries of colour-printing, the magical effects of electricity, kitchen middens, flint implements, X-rays, earthworms—all these are dealt with in a clear and interesting fashion; and those concerned in plant-life are not forgotten, for there is a comprehensive article on the sleep of plants, by Mr. JOHN FRASER.

LUCKNOW.

A FRIEND residing in Lucknow, mentions in a letter recently received, that there has been, among the European residents, an outburst of disgust, owing to their beautiful park having been spoilt by an ugly and mal-odorous open sewage-drain which has been run right across that pleasure ground.

The photograph, which accompanied the letter, plainly shows what an ugly and disagreeable piece of work has been there carried out. It looks like a railway cutting, but instead of rails at the bottom of the cutting, there is a drain, which receives the sewage of a neighbouring native bazaar.

All those who have been in India know what sort of perfume comes from a native bazaar drain; and I, who was Health Officer of Lucknow for several years, perhaps know more about native bazaar drainage than most people.

One, however, wonders why the disgust of the European community was not shown before the work was completed, by signing a strong protest against the spoiling of their beautiful and oldest park by such a nuisance. The photograph does not show all the damage that has been done, for in order to carry out this work, I am told that no fewer than thirteen fine trees had to be cut down! This hideous piece of work was carried out by the local Municipal Board, which, strictly speaking, had no right to interfere in any way with the grounds of the park. The locality was originally made over by the Government to the people as a public park, and as an open space where both civil and military, Europeans and natives, might enjoy the cool air, morning and evening.

I was in Lucknow when the Wingfield Park was commenced, and for many years I used to enjoy an occasional evening stroll among its beautiful trees, shrubs, Rose-beds, &c.

The Municipal Board mainly consists of native gentlemen, headed by the Deputy Commissioner and the City Magistrate. My experience of natives of India is that, like all Orientals, they have no particular objection to mal-odorous drains, even in the vicinity of their dwellings. The European officials are often changed. Some are promoted, others are transferred to other stations, some go home sick or on furlough; so that there is little continuity of any work that one official may have taken trouble to commence.

Here is an example of what may often occur in India. When I was at Etawah, the Inspector-General of Prisons advocated the planting of Lemon and Lime-trees in the jail gardens, so that the prisoners might have the juice of the fruit with their food to keep off scurvy; so that I took a great deal of trouble in furnishing the jail gardens with those trees. When I left, the head of the department was changed, and the next head disapproved of tree-planting in the jail gardens, and, as I afterwards heard, had all those fine trees cut down! The head of a department in India is more or less of an autocrat; and when the head changes there is another autocrat, but, may be, with different ideas.

Indian officials come and go, here to-day, and gone to-morrow; so it is no wonder that often they do not take much interest in carrying out improvements that may have been begun by others.

But what was Mr. Ridley doing when this "beautiful" sewage-drain was being constructed in the midst of the pretty park of which he had permanent charge?

Unfortunately, during the construction of this additional "embellishment," Mr. Ridley was not in Lucknow at all, but on sick-leave in England, and probably had never heard of it. I am told that when he returned to Lucknow he was struck with horror at the disfigurement of the park, which he had done so much to improve and beautify.

But now the mischief is done, and it is too late to shed tears about it. But there remains a remedy, and the best thing for the European community of Lucknow to do is to insist that this nuisance should be obliterated by having the open drain covered in, and if the earth on the top of the drain-tunnel be turfed and bedded with Rose-bushes, which grow admirably in Lucknow—I never saw better and finer Maréchal Niel and Cloth of Gold anywhere—the whole objectionable performance may pass away like a bad dream! *E. Bonavia, M.D., Feb.* 23, 1903.

The Week's Work.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Planting Evergreens.—Most evergreen shrubs may be planted with best chances of success during early autumn and spring. Probably, for very big specimens of Hollies, autumn is even better than spring, if it can be carried out early enough. But from now until the middle of May there is a lengthy and convenient period over which such plantings may be distributed. When moving shrubs, any extra care taken in preserving a good ball of soil and roots, with each plant is well repaid by after results. A good ball does not necessarily mean a large one. Where too big a ball is taken, there may be a collapse of the whole while being transferred to the permanent position. A trench should be taken out round each plant larger than the circumference of the spread of branch, and deep enough to get well below the ball, then the sides of the latter should be reduced by the careful use of a garden fork, until a point is reached at which the soil and roots are well matted together. After this, work the soil from underneath, so that a garden mat may be folded and drawn half under, and the ball gently toppled over on to the mat, the under half of which may be drawn forward so that when the plant is again set upright the ball will rest in the middle of the mat and be ready for lifting. This is the best method for dealing with small shrubs, such as may be carried by four men, but larger ones need planking below so that they may be moved on rollers, or, better still, with a tree-lifting machine.

Pampas Grass.—This ornamental plant should not be allowed to exhaust itself through inattention. It is advisable to keep up a stock of young plants, which may be obtained by division of any old stool that shows signs of loss of vigour. The plants are now beginning to grow, and this is the only time when division and replanting may be done with perfect safety. Provide a deep rich soil for the plants to grow in. Old specimens may be cut over to remove most of the dead and unsightly leafage, or in extreme cases of congestion apply a match to the clump; it will consume the dead matter, and do very little harm to the living portion.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

French Beans.—To maintain a constant supply of Beans, a sowing should be made every fortnight throughout the season. Two more sowings may be made under glass, in pots, or boxes; but after this date, the best results can be got from heated pits, in which should be made up a hotbed of tree-leaves and stable-litter. On this, place a layer 1 foot deep of soil that has been used for growing Cucumbers or Melons. When the heat of the hotbed has declined to 80°, sow the seeds in rows a foot asunder, and leave 6 inches between each plant. Syringe plants that are growing or fruiting, but not those in flower; and do not allow the plants to become dry at the roots.

Salads.—Sow Lettuce seed on a south border in drills 1 foot apart, and prick off the seedlings into boxes or frames as soon as they are ready. Plants raised in the autumn may be planted in rows on a warm border. Globe Beet will come quickly into use if sown under glass, and furnish salading material that will be appreciated. An old hotbed

on which Asparagus has been forced will answer admirably. Afford a bed of good soil about 15 inches deep, draw the drills at 10 inches apart, and thin the seedlings to about 6 inches apart. Sow seeds of Radishes on a warm border, and seeds of Mustard-and-Cress under hand-lights, which should be darkened until the seeds have germinated.

Vegetable-Marrows.—Early plants growing in pots may now be planted in their fruiting quarters, in frames placed on very mild hot-beds of tree-leaves and dung, prepared as advised for French Beans. Let the temperature be from 65° to 70° by day with sun-heat, and not less than 50° by night. Afford air when practicable, but avoid cold draughts, or mildew will follow; and dustings with flowers-of-sulphur will be necessary. Sow seeds singly in 3-inch pots for succession.

Cauliflowers that have been wintered in frames, and are thoroughly hardened off, may be safely planted out in sheltered positions. Carefully lift the plants with plenty of soil attached, and plant them firmly with a trowel, inserting them quite up to the heart leaves. Place inverted flower-pots over them at night when the weather is severe; or a few Spruce boughs placed about the plants will shelter them against cold winds and frost. After planting, mulch the ground around with spent manure from a Mushroom-bed.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Vallotas.—Unless these plants really require more root space, or have got into a bad state, it is best not to disturb them, as they flower more freely when the pots are moderately filled with roots. If top-dressing be sufficient, pick away the surface-soil with a label, and avoid damaging the fleshy roots; make the drainage good, and then work in some fibrous loam, half-decayed leaf-soil, and plenty of sharp sand, or pounded brickbats or charcoal. The same kind of compost may be used for repotting. Let the bulbs be rather more than half their depth in the soil; place them in a cool pit or frame, and afford them all the light and sun possible, with abundance of ventilation in favourable weather. Manure-water may be afforded weekly to established plants when developing flower-spikes during the next six months.

Celsia arcturus.—Plants raised from seed sown last July and potted into 5-inch pots, are now in flower here. These have been wintered in a vinery where a little fire-heat has been used at night only when frost threatened. Seeds may be sown now in gentle heat, using a sandy soil and barely covering the seed; when fit to handle, dibble five or six of the seedlings into each 5-inch pot, and stand them near the glass in a cold frame. Move them into 4-inch pots before crowding takes place, and eventually into 6 or 7-inch pots, adding a little well-decayed manure this time. The finest spikes are produced by plants that have not been stopped. Some seedlings appear much more robust than plants raised from cuttings.

Nepenthes.—These plants require much heat and moisture from now onwards. They thrive best suspended in baskets from the roof. Any "leggy" plants may be cut back, and when new growth has commenced, move them into other baskets if this be necessary, but they will succeed well undisturbed for three or four years if an annual top-dressing be afforded. As a rooting medium employ fibrous peat and sphagnum-moss, and syringe them overhead several times daily. Propagation is done by taking cuttings from wood one year old, and rooting them over a strong bottom-heat.

Coleus.—Pot cuttings or young plants as soon as they are fit, using a compost of loam, leaf-soil, and sand, and a very small proportion of peat. Cultivate the plants in a temperature of about 60° at night, and if large bushy plants are required, pinch out the point after they have made a fresh start, repeating the process twice or thrice after one pair of leaves have been made; but good decorative plants can be grown without stopping the leader at all, merely pinching all side shoots as they appear.

Lapagerias.—These cool-house climbers should be trained at a distance of 12 or 15 inches from the roof-glass. Tie in the growing shoots with care before they become entangled with each other. Daily syringing will help to keep the plants free from thrip, red-spider, and green aphis. If aphis be very troublesome, fumigate the plants, or syringe them with quassia-extract. The borders for Lapagerias should be specially prepared, of three-parts fibrous peat, one part loam, with a good percentage of charcoal and coarse silver-sand added. Let the border be 18 inches deep, and let there be 6 inches of drainage material under this. Protect young growths that come from the base with zinc or cotton-wool, slugs being especially fond of these. Afford water in abundance during the growing season.

FRUITS UNDER GLASS.

By T. H. C.

Figs.—Trees in pots and small borders require frequent supplies of tepid water, and weak liquid-manure. In cases where trees are carrying heavy crops, a stimulant may be given each time water is afforded, and natural manure varied occasionally with a good artificial fertiliser. Afford a top-dressing of loam and bone-meal to pot trees if space will allow. Ventilation is most important, and if properly carried out, the leaves will gather much substance, and be the better able to resist insects and fungoid pests, and the fruit will be of better flavour. The early trees should have a night temperature of 60° to 65°, with 10° to 15° higher by day. Syringe the trees twice daily in bright weather, and keep the atmosphere moist until the fruits commence to ripen, when syringing should be discontinued.

Succession Houses.—Start with a night temperature of 45° to 50°, gradually increasing this to 60° to 65° by the time the fruits are three-parts grown. Stop all growths, except the leading shoots, at the fifth or sixth leaf; and when the trees are in full growth, afford them an abundance of water, and manure if they are bearing good crops of fruit.

Muscat Vines.—Muscats commencing to flower need a drier atmosphere in the middle of the day, so that the pollen may be quite dry, and the bunches be carefully pollinated by means of a soft brush; but it is a mistake to suddenly subject them to an atmosphere as dry as it was previously moist. Damp down the surfaces in the house as previously recommended, except in the early morning and forenoon. If much fire-heat be employed, and red-spider appears, much after-labour will be saved if the affected leaves be immediately sponged. A night temperature of 70° to 75°, and 10° to 15° more by day, is desirable, the lower figures in dull weather. Make the most of the sun-heat during the day, and in this way dispense with fire-heat as much as possible. Commence to thin the bunches and berries directly the fruits have "set." Let the degree of thinning be sufficient, that the remaining berries may be large, but not to cause looseness in the bunch. Avoid over-cropping.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Dendrobium Wardianum having passed out of flower and making growth, should be examined without delay. On no account disturb the plants unless it is really necessary, as they yield more satisfactory results when well established in small pans. Plants that were imported early in the year, and have been suspended in an intermediate-house, should be potted up, and placed with the rest of the growing plants. Use the compost described in last week's Calendar, and do not put the plants into larger pots than are necessary, nor afford water afterwards when it is not required.

Cattleyas.—C. Warscewiczii (gigas) and C. aurea having rested, are now pushing forth new growths. Let each plant be carefully inspected, and if the rooting material has become sour, repot such plants at once rather than after the flowering period. Be careful to avoid damaging the roots when removing the plants from their receptacles shake all the old material from them, and cut away any roots that are dead, also useless pseudo-bulbs; these latter become a drain upon the plants, and necessitate the use of larger pots than would be necessary otherwise. Three or four pseudo-bulbs behind each lead are quite sufficient. Use pots or pans of sufficient size to accommodate the plants for two or three years without disturbance, placing a layer about 1 inch deep of crocks in the bottom for drainage. The following is an excellent compost, and should be used in as rough a state as possible:—Peat two-fifths, good leaf-soil two-fifths, and chopped sphagnum-moss one-fifth, adding crushed charcoal, crocks, and silver-sand. Work the material well down amongst the roots, and press it moderately firm, keeping the base of the plant just under the rim of the pot. Let the surface be made of a coating of clean chopped sphagnum-moss two-thirds, and good fibrous peat one-third, mixed well together. Place the plants in the warmest part of the Cattleya-house. Established plants need all the light possible, but the newly potted ones should be shaded from the sun's rays, and be afforded water with great care. On fine days the plants may be sprayed gently overhead.

Cattleya labiata and C. Gaskelliana should also be treated similarly, and when this has been done, place the plants in the cooler part of the house.

C. Trianæ and its numerous varieties having passed out of flower, may be repotted or top-dressed as soon as it is seen that root-action has commenced.

Back Pseudo-bulbs.—Attach a label to those removed from good varieties of Lælias or Cattleyas, and lay the bulbs upon the stage, where they will get syringed frequently. If they start into growth, after a time they may be potted up.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Strawberries for Autumn Fruiting.—If it is desired to have ripe Strawberries during the months of August and September, I know of no better variety for the purpose than Vicomtesse H. de Thury. Forced plants from which the fruits have been already gathered should be gradually hardened. Do not allow them to become dry at the roots, and if red-spider is present on them, the pest must be destroyed by dipping the plants in a solution of Gishurst Compound, using 6 oz. of the compound to a gallon of water. If a heated pit can be spared, it will be an excellent place to gradually harden the plants. Ventilate the pit early in the day, and after a week the plants may be placed in a cold frame, and the lights removed on warm days. The plants may afterwards be planted on a border facing west, for in this position the fruits will receive the sun's rays during the latter part of the day. Dig in a good dressing of decayed manure before the planting is done in the middle or third week of April. Let the rows be 2 feet 6 inches apart, and the plants 15 inches asunder from each other, and next autumn, after fruiting, remove every alternate plant. The balls of soil should be in a moist condition when planting is done. Work the soil around the plants with a trowel, and make it firm. When this has been done, afford a watering, and then a mulch with stable-litter. Remove all runners made during the summer, and afford water during dry weather.

Alpine Varieties of Strawberries.—If seeds were sown in January, and the plants subsequently pricked out in boxes, the strongest may now be potted into small 3-inch pots, using a light, rich compost. Keep the plants near to the glass in a frame, and admit air on all favourable occasions. Put out the plants at the end of April into a west border, at a distance of 1 foot each way.

Morello Cherries, being very thickly set with flower-buds this year, would be the better for being thinned to the extent, at least, of removing badly-placed flowers before they expand. On no account omit to syringe the trees with quassia-water or the Extract before the flowers open.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR APRIL.

WEDNESDAY,	APR. 1	Royal Botanic Society's Show, Regent's Park.
THURSDAY,	APR. 2	Linnean Society Meeting (Botany). Torquay Gardeners' Association, Spring Show.
SATURDAY,	APR. 4	Société Française d'Horticulture de Londres Meeting.
TUESDAY,	APR. 7	Royal Horticultural Society Committees Meeting, Lecture on "New Shrubs and Trees."
MONDAY,	APR. 13	—Bank Holiday.
WEDNESDAY,	APR. 15	Shropshire Horticultural Society, Spring Show.
THURSDAY,	APR. 16	Linnean Society Meeting. Midland Daffodil Society, Show at Birmingham (two days).
SATURDAY,	APR. 18	Fifteenth International Quinquennial Exhibition at Ghent, Belgium, from 18th to 25th inclusive.
MONDAY,	APR. 20	—Surveyors' Institute Meeting.
TUESDAY,	APR. 21	Royal Horticultural Society Committees Meeting, Lecture on "Horticultural Education." National Auricula and Primula Society, Show at Drill Hall. Brighton Spring Show (two days).
WEDNESDAY,	APR. 22	—Royal Botanical Society Meet.
WEDNESDAY,	APR. 29	National Auricula Society Show (Midland Section) at Birmingham (subject to alteration).
THURSDAY,	APR. 30	Norfolk and Norwich Horticultural Society Show. Irish Gardeners' Association Meeting.

SALES FOR THE WEEK.

MONDAY, MARCH 30—
Perennials, Roses, Liliums, Ferns, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Clearance Sale of Orchids, Greenhouse Plants, Glasshouses, and Effects at Daisy Cottage, Stacksteads, near Manchester, by order of the Executors of the late D. Lord, Esq., by Protheroe & Morris, at 12 30

WEDNESDAY, APRIL 1—100 lots of Established Orchids, 10,000 Cannas, &c., &c., at Stevens' Rooms, at 12 30.—Azaleas, Liliums, Roses, Border Plants, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Consignment of Japanese Liliums, &c., at 5.

WEDNESDAY and THURSDAY NEXT—
Important Sale of the well known "Monkholme" collection of Orchids, at Monkholme, Brierfield, near Burnley, by order of the widow of the late R. Tunstill, Esq., by Protheroe & Morris, at 12 each day

FRIDAY, APRIL 3—
Orchids in great variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —45·5.

ACTUAL TEMPERATURES:—
LONDON.—*March* 25 (6 P.M.): Max. 68°; Min. 47°. *March* 26 (Noon): 58°; Warm, showery, thunder.
PROVINCES.—*March* 25 (6 P.M.): Max. 6.°, Home Counties; Min. 46°, N.E. Scotland.

Manures for Chrysanthemums.

A COMMITTEE of the National Horticultural Society of France was appointed in 1901 to act with a similar committee of the French Society of "Chrysanthemists," to ascertain by practical experiment what are the best artificial manures to employ in the culture of Chrysanthemums.

A report was presented to the National Horticultural Society in December last by M. GEORGES TRUFFAUT giving the principal results of the experiments carried out for these objects. Of these we propose to give a brief summary, based on the report published in the Journal of the Society.

Nine cultivators, scattered over as many districts of France, first all submitted for analysis samples of the soil they intended to use, no manure of any kind being added. Each of the nine growers experimented with a single variety, "Madame Gustav Henry," a variety of moderate vigour, and with pure white flowers. M. NONIN alone chose two varieties, viz., Madame Gustav Henry, and Mdlle. Laurence Zédé, a more vigorous variety.

The plants were all grown in three different ways—1, plants allowed to form three stems; 2, plants with six stems; 3, plants grown without any disbudding. Twenty-four plants were grown in each of these three ways. Each grower thus had seventy-two plants under observation, the total number being about one thousand.

Of the twenty-four plants observed by each cultivator in each of the three sections, four received no manure, and served as control plants; four received a complete manure; four a similar manure, but in double quantity; four a complete manure with no nitrogen; four a complete manure with no potash; four a similar manure from which the phosphoric acid was eliminated.

The manures were mixed with the potting-soil in April, and, from August onwards, they were given in the form of solution.

The "complete" manure had the following composition:—Fish guano, twenty-five per cent.; dried blood, sixteen per cent.; sulphate of potash, twenty-four per cent.; double superphosphate, thirty-five per cent.; the analysis of which gave four-fifths nitrogen, eleven-twelfths potash, fifteen-sixteenths phosphoric acid.

The soluble manure consisted of phosphate of potash, fifty-four per cent.; nitrate of soda, forty-six per cent.; or nitrogen, 6·9 per cent.; potash, 14·04; phosphoric acid, 20·52.

The quantity used was at the rate of nine hundred grammes to one hundred kilogrammes of soil. The liquid solution was used in the proportion of two grammes to one litre of water. Each experimenter undertook to present to the Congress at Angers, in November 1902, at least eighteen plants, that is to say, one specimen illustrative of the mean result obtained in each series, and each experimenter acted up to his obligation. There were thus shown at Angers one hundred and eighty plants arranged in three rows, and each appropriately labelled.

The principal objects of these experiments was to show by growing in sterile soil (white sand), the influence of nitrogen, potash, and phosphoric acid respectively. The object of the other experiments was: 1, to show the influence of the complete manure in soils of varied character, but of known composition; 2, to study the influence of climate or season on the action of the manures, and the cultivation of one and the same variety.

We cannot give the full details of this most interesting and important series of experiments, suffice it here to say, that the most successful result, as tested at the end of the experiment, was obtained where a double dose of the manure was employed, then came the plants treated to a single dose of complete manure; next in descending order, plants grown without potash, without nitrogen, and the worst of all (except, of course, the unmanured plants), were those plants which had no phosphoric acid.

Phosphoric acid is thus shown to be of great importance to Chrysanthemums, and as necessary to the formation of chlorophyll. Plants deprived of this ingredient had yellow foliage and a weak habit.

Without potash, the plants produced long weak stems, broad, thick, but flabby leaves, falling off from the least cause. The flower-stems were large, hollow, but limp, the flowers large, but of bad shape.

When nitrogen is absent the plants are feeble, chlorotic, the leaves small and thick, the stems of small diameter, the flowers few in number, hollow in the centre, and of small size.

M. TRUFFAUT, in summing up the results of this grand series of experiments, advises cultivators to prepare a good compost of two-thirds sandy loam mixed with leaf-mould, and to submit the compost to a chemist for analysis. The chemist will then be able to ascertain if the requisite elements are in due proportion or not, and to advise accordingly.

Nitrogenous manures, it is found, should only be applied in small proportions, as plants grown with an excess of nitrogenous manure are more subject to the attacks of rust.

Nitrogen is most conveniently applied by means of dried blood, horn shavings, or guano in the requisite proportions; potash is best applied in the form of sulphate; and bone phosphate yields the necessary phosphoric acid. Soluble manures are requisite in the case of plants cultivated in pots from the middle of August.

As to climate, there was a difference of three weeks in the growth of plants grown at Lille and at Avignon respectively. M. TRUFFAUT rightly says, that so far as practical details of cultivation are concerned, a series of well-conducted experiments is of more value than ten years of discussion at congresses. But it must not be forgotten that congresses are necessary, in order to secure that the knowledge obtained from the experiments shall be disseminated among a class of persons not given to trouble themselves to read technical papers.

M. TRUFFAUT may be warmly congratulated on the successful results of the experiments, and a debt of gratitude is due to him and his collaborators.

We may suggest, in conclusion, that the experiments be now extended, and that an analysis of the plants themselves made at the beginning, in the middle period, and lastly at the flowering stage.

We have accumulated a good deal of knowledge of the chemical composition of the soil, and also of the dead plant when cremated. What we want now is, a fuller and clearer knowledge of what the living plant does in the several stages of its career, and to this end an analysis of the plant as grown under varied conditions, and at different periods in its life history, is requisite. M. TRUFFAUT, who knows so well the requirements of the case, might be solicited to undertake or supervise these further experiments, and the resources of the several Chrysanthemum Societies could not be put to better use than by furnishing the requisite financial assistance.

HORTICULTURAL HALL. — Sir JOHN T. D. LLEWELYN, has given £105; The Lady WANTAGE, £100; and W. E. GUMBLETON, Esq., £50, towards the building fund.

—— The Council have to-day, March 24, accepted a tender from Messrs. MOWLEM AND CO., for £2,340, for the excavation and foundations of the Hall. The contract has been signed and sealed. *W. Wilks, Secretary.*

THE ROYAL BOTANIC.—The Chairman of the Finance Committee publishes a statement, which will be received with some surprise, to the effect that the ground now occupied by the "Botanic" never formed a part of a public park. This may be so technically, but it does not affect the fact that the gardens which adjoin a public park, if they do not form an integral portion of it, have been recently leased on favourable terms by the Government to a Society whose claims on such Government recognition are very materially less than those that can be advanced on behalf of the Royal Horticultural Society. The statement that no answer was given to the courteous proposal that the Royal Horticultural Society should hold its shows, or some of them, in the Regent's Park, must of course have been made by those who had never read the reference made to the subject by the President of the Royal Horticultural Society, and reported in our columns on February 15, 1902.

UTILISATION OF THE SEWAGE OF BRUSSELS.—M. LUCIEN LINDEN is the President and part founder of a society that has undertaken the purification of the residual waters of the sewage of Brussels, and the utilisation of their products. The authorities of the city have permitted this "Epuration" Society to construct works for purifying the residual waters of the town of from fifteen to twenty thousand inhabitants, and some satisfactory experiments have already been made. The sewage-water of Brussels, from being black as ink has been made as clear as crystal, and from it has been withdrawn all greasy matter which can be turned to profitable account, the final residue forming a "humus," which will be valuable in agriculture. The system deals with an important subject, and is working satisfactorily and economically. M. LINDEN thinks that this "Vial" scheme, so named from its originator, should prove acceptable in England also.

PRESENTATION. — Before leaving Mount Charles to take up his duties at Bawdsey Manor Gardens, Suffolk, Mr. F. FULFORD was recently presented by many friends in Alloway and Ayr, with a handsome marble timepiece and ornaments, and Mrs. FULFORD received a beautiful gold brooch, and a gold mounted umbrella. Mr. FULFORD also, an engraved gold telescope, pen and pencil-case, from his employers at Mount Charles, who wished him success in his new home.

GROWTH OF POTATO-TUBERS.—The object of VOCHTING's latest researches into the formation of tubers was to study the effects of external conditions on the development of Potato-tubers. The French variety of Potato, known as "Marjolin," was considered to be the most suitable. With regard to temperature, it was found that a maximum temperature of 25° C. (77° F.) caused a rapid development of roots, and later leafy shoots, from the tuber; while at a low temperature, about 6° C. (42° F.), the roots formed were few and weak, and no leafy shoots were produced, but only secondary tubers. Similar results were obtained when the amount of water in the soil was varied. When water was plentiful, roots and leafy shoots were formed, but if the quantity was so small that the plant was enabled to retain it in spite of the osmotic attraction of the sap in the root-hairs, then tubers were developed. Also experiments were made with dry and moist conditions of the air, while the soil was kept wet. In dry air the shoots crept along the surface of the ground, that is they were hydrotropic, and the leaves were reduced to scales. The author offers an explanation of his results based on the heat of combustion of dextrose, starch, and cellulose. *Botanische Zeitung*, 60, 87, *ex Journal of the Pharmaceutical Society.*

REVERSION IN TOMATOS.—It is stated in *Science*, xvii., 1902, as cited in the *Botanisches Central Blatt*, 1903, p. 200, that seeds from a large-fruited variety, grown in the northern United States, when transferred to Cuba, produce in the second generation a small-fruited form, which becomes persistent.

POTATO-SPRAYING EXPERIMENTS IN 1902.—The New York Agricultural Station has undertaken to determine how much the yield of Potatos may be increased, on the average, by spraying the plants with Bordeaux Mixture for ten consecutive seasons; also, which is more profitable, to spray every two weeks throughout the growing season, or to make but three applications. The experiments are to be carried on in two localities, viz., on the Station farm at Geneva and on Long Island. At each place the area of the experiment field is to be three-tenths of an acre each season. The present bulletin gives the results of the first year's work. At Geneva, the rows sprayed three times yielded at the rate of 317½ bushels per acre; those sprayed seven times 342½, and those not sprayed 219. Thus, three sprayings increased the yield 98½ bushels per acre, and seven sprayings 123½ bushels. The increased yield on sprayed rows was due chiefly to the prevention of late blight. On Long Island the rows sprayed three times yielded at the rate of 295⅓ bushels per acre; those sprayed seven times 312½, and those not sprayed 267⅔. The increased yield due to three sprayings was 27⅔ bushels per acre, while that due to seven sprayings amounted to 45 bushels per acre.

THE DOUGLAS FIR.—A curious case of a woman being poisoned by handling the branches and leaves of this tree while gardening, and not washing her hands before eating, is recorded by NEUDORFFER in the *Centralb. f. Innere Medicin.* The symptoms were spasmodic convulsions, dyspnœa, and coma. Other persons appear to have been more or less affected who were working at the same employment. It appears probable, therefore, that the tree which is cultivated for ornamental purposes, contains some poisonous ingredient to which some persons are more susceptible than others. *Nouv. Rem.*, 1903, 65. *Journal of the Pharmaceutical Society.*

THE NATIVE COUNTRY OF THE COMMON LILAC.—M. LOCHOT, in a recent number of the *Revue Horticole*, establishes the fact that the common Lilac is indigenous in the Balkan range from the Black Sea to Hungary, thus confirming the opinion of M. ANDRÉ, who found it growing wild in Servia and Bulgaria.

ABERDEEN PUBLIC PARKS.—It is only two or three years ago, writes a correspondent, since the Town Council of Aberdeen purchased, at a cost of £15,000, the property known as Westburn, which has been converted into a beautiful park. Large sums of money have been spent on Westburn Park, a bowling-green has been laid out, and a pavilion erected for the bowlers. The Council has now decided to purchase the lands of Lochhead adjoining, and thus carry out the idea to "round off" the Westburn Park. The price to be paid is £4,250, and it is not dear at that figure. The purchase of the estate of Lochhead has aroused a keen agitation in the west-end of the city for the purchase of the lands of Bleachfield, the lease of which by the Company now owning it will terminate in a year or two. This ground is the only suitable area in that quarter of the city that could be acquired for a public park. There are a few fine sheets of clean water in the middle of it, with a clear stream running in and another running out. The ground is well sheltered, and grass, flowers, and trees would be sure to grow luxuriantly. If properly laid out, it would make the finest park in the city of Aberdeen, and that is saying a good deal. Its natural beauties are exceedingly fine, but the main reason why this estate should be bought is that it would preserve the most exquisite view of the city obtainable. The residents of this quarter of the city look with confidence to the Council to acquire the site, for if the matter be allowed to drop, there will be no further opportunity of providing a park for that locality, and a park will be very necessary when the city has extended further westward, as it is sure to do.

LINNEAN SOCIETY.—The next meeting of the Society will be held on Thursday, April 2, 1903, at 8 P.M. when the following papers will be read—Mrs. GEPP (ETHEL S. BARTON): List of Marine Algæ collected at the Maldive and Laccadive Islands by Mr. J. STANLEY GARDINER, M.A. (Communicated by Mr. ANTONY GEPP, M.A., F.L.S.). Mr. D. T. GWYNNE-VAUGHAN: The Comparative Anatomy of Cyatheaceæ and other Ferns (Communicated by Dr. D. H. SCOTT, Sec., L.S.). Exhibition: Mr. B. DAYDON JACKSON. Note-book containing the record of Linnean plants presented for incorporation in the herbarium of Sir JOSEPH BANKS, Bart.

MESSRS. HUGH LOW & CO. — There were rejoicings at the Bush Hill Park Nurseries on Saturday last, when Mr. STUART HENRY LOW entertained nearly 200 employés of the firm to dinner, in celebration of the birth of a son and heir. The employés, through Mr. HEATON NICHOLLS, who was in the Vice-Chair, took this opportunity of presenting to Mr. Low a silver cup.

BLUE HYDRANGEAS.—The cause of the blue coloration has been the subject of multiple discussion, but so great is the conflict of evidence, that it cannot yet be said any satisfactory conclusion has been arrived at. In a recent number of the *Revue Horticole* we find a statement to the effect that certain plants whose roots were in contact with fragments of slate that had fallen from the roof of a mansion produced blue flowers. Elsewhere, where fragments of tiles were mixed with the soil, the flowers were of a rose colour. Here is another experiment which might be tried at Chiswick.

TUBEROUS AROIDS.—Wonderful stories are related in less or more veracious advertisements in the lay press relating to certain tuberous Aroids. The plants themselves are indeed wonderful, their foliage is imposing, their flowers are attractive, but they have one drawback in the possession of a most offensive odour. M. LINDEMUTH, of Berlin, however, has, it is said, devised a method of culture by which this objectionable peculiarity may be obviated. The Berlin gardener simply places the tubers (in this case, of Amorphophallus Rivieri) in the greenhouse, without soil or water. Under these conditions the tubers start into growth, produce their quaint flower-spike and spathes, which are destitute of odour, and when the flowers have faded, the tubers are potted in the usual manner, and the noble foliage is produced, the flowers being thus developed at the expense of the nutritive matter stored up in the tubers. The plant grown in this country, and of which marvellous tales are told, is Sauromatum guttatum, but whether its fœtid odour is dispensed with under these conditions we do not know.

The Midland Daffodil Show.—We are asked to state that, owing to the extreme earliness of the season, the Midland Daffodil Show will be held in the Edgbaston Botanical Gardens on April 16 and 17, instead of April 23 and 24, as was previously arranged.

Rose Show Fixtures in 1903.—The following dates of Rose shows in the ensuing season having been decided upon, are kindly forwarded to us by Mr. E. Mawley, Rosebank, Berkhamsted, Herts, for publication:—June 24 (Wednesday), York (three days); June 25 (Thursday), Holland House (Royal Hort. Soc., two days); June 27 (Saturday), Windsor; July 1 (Wednesday), Temple Gardens (National Rose Society), and Richmond, Surrey; July 2 (Thursday), Canterbury, Colchester, Norwich, and Reading; July 4 (Saturday), Sutton and Walton-on-Thames; July 7 (Tuesday), Gloucester and Wolverhampton (three days); July 8 (Wednesday), Croydon and Southampton (two days); July 9 (Thursday), Bath and Woodbridge; July 15 (Wednesday), Glasgow (National Rose Society), Formby, Ipswich, and Thornton Heath; July 21 (Tuesday), Tibshelf; July 22 (Wednesday), Cardiff (two days); July 23 (Thursday), Salterhebble; August 3 (Monday), Sheffield. The above are the only dates of Rose shows, or of other horticultural exhibitions where Roses form a leading feature, that have yet reached him. He will be glad to receive notice of any other Rose show fixtures for publication in a future list.

Spring Flowers. — In the show-house at Messrs. Veitch's nurseries at Chelsea there is quite a treat of spring flowers. Pyrus floribunda forces well, and its pink colour is most effective when mixed with other things. Cerasus pseudo-Watereri is exquisite; Deutzia Lemoinei is well flowered, and is quite superior in colour and habit to the old variety. There is a very fine show of Rhododendrons (Azaleas) of choice varieties, also some fine types of A. mollis, and a collection of small Camellias, well flowered, and some only in 54-pots; it is pleasant to think this plant is again coming to the front. Some finely-flowered Rhododendrons also find a place—R. Veitchianum being particularly good, and very sweet-scented. On a side stage were Carnations, including Princess Alice, Monaco, W. Robinson, America, Aurora Borealis, and Countess of Warwick; Acacia cordata, Spiræa japonica compacta, and S. palmata; also Boronia heterophylla, and Primula kewensis × were noticed. Jasminum primulinum, the new plant exhibited at the Royal Horticultural Society on Tuesday week will make a fine addition to our early-flowering shrubs. In another house was a very showy batch of Dendrobium crassinode, finely flowered. The Hippeastrums will soon furnish a fine display.

Sweden.—A large fruit and flower show will be opened in Gothenburg on September 18 to 23 next. Only Swedish cultivators are allowed to compete. The schedule consists of fifty-seven classes in nine groups. These groups comprise hardy fruits, fruits under glass, vegetables, preserved fruits, wines, &c.; pot plants, cut flowers, fruit trees, ornamental trees and shrubs, herbaceous perennial seeds, bulbs, roots, and medical plants. In the year 1901 the Royal Swedish Agricultural Academy at Stockholm invited a competition in essays upon "Fruit Trees and Berry Bushes: their Planting and Cultivation by small Growers." Six essays were sent in, but no prize was awarded. Last year the invitation to compete on the same subject was repeated, and this time also several essays were sent in. The result of the competition has lately been made known. First prize (600 kronor = £33 6s.) was given to an essay marked "*Honi soit qui mal y pense*," and the second prize (300 kronor) to an essay marked "*Labor omnia vincit.*" The first prize was won by our Swedish correspondent, Mr. N. A. Dahlmark, of Gothenburg. Our illustration on this page affords a view in the Palm-house of the Horticultural Society of Gothenburg.

Fig. 84.—View in the large palm-house of the Horticultural Society of Gothenburg, Sweden.

Publications Received.—Among recently published books, of which fuller notice must be given at an early opportunity, are: *The Book of British Ferns*, by Chas. T. Druery (*Country Life* Office, 8vo, pp. 133, with numerous illustrations).—*English Timber, and its Economical Conversion*, by "Acorn" (W. Rider & Son, pp. 208).—*The Dahlia: its History and Cultivation*, by various Authors (Macmillan & Co.). — *Variation in Animals and Plants*, by H. M. Vernon, M.D. (Kegan, Paul, Trench, Trübner & Co.).—*A Third Pot-Pourri*, by Mrs. C. W. Earle (Smith, Elder & Co.).—*The Book of the Wild Garden*, by S. W. Fitzherbert (John Lane).

ANDROSACES.

[See Supplementary Illustration.]

These charming denizens of the Alps, the Pyrenees, the Himalayas, and other mountain ranges, when growing freely, are among the most beautiful of rock-garden plants. Unfortunately, however, their culture is sometimes difficult; for, although some species flourish in certain gardens, all the solicitude of skilful plant-growers in other localities proves powerless to induce satisfactory growth. In their native altitudes the plants are exposed to severe frosts, and in England have withstood 30° without harm; but the alternations of frost and damp experienced in our winters are often fatal to the plants. As a preventive of undue moisture during the winter, large panes of glass fixed above the plants prove an effective remedy; while surfacing the soil with stones tends to keep the foliage from becoming sodden. A deep root-run of porous soil should be provided, so that the root-fibres may remain moist while foliage and flowers are enjoying the summer sunshine to the full, a good compost being one consisting of peat, leaf-mould, loam, and sandstone grit, though specimens are often found growing well in sandy loam. All species are partial to being planted near stones deeply sunk in the soil, and some can only be satisfactorily grown in rock fissures. Of the two dozen or so of species, the following are amongst the most noteworthy: A. sarmentosa, shown in the supplementary illustration, a native of the Himalayas, bearing flower-heads of pink, yellow-centred blossoms, is of spreading growth, and sends out long thread-like runners, on the extremities of which small rosettes are formed. It is a good plan to place stones on the runners, or to peg them down, when they will root into the soil. The leaves are very woolly, and the plants often suffer much from damp in wet winters. The illustration represents a specimen over 3 feet across, growing in a well-known South Devon garden. A. Chumbyi is a variety of A. sarmentosa, having larger and brighter flowers, but is less creeping in its habit. A. lanuginosa is a Himalayan plant, and perhaps the prettiest of the whole family; its rosy-lavender flowers commence to expand in May, and are at their best about midsummer, but continue well into the autumn, it being no uncommon occurrence to see an example still blooming in mid-November. The silvery foliage is silky in appearance, and the plant makes prostrate stems a foot or so in length. Cuttings may be made of the tips of these, which soon strike in pure sand if kept close for a short time. Cuttings planted in the spring a few inches apart soon form an effective mass; old stems cut back make stronger growth, and give finer heads of bloom. The best position for this Androsace is one where its growths can hang over perpendicular stones. As an instance of the capriciousness of the Androsaces, I may mention that the finest mass of this species I ever saw, which formed a cataract of bloom over 6 feet long and 3 feet wide down a series of rocky ledges, and whose owner described it as the most easily grown of its race, failed a few seasons ago, after a long period of perfect health, since when the species has absolutely refused to grow in the garden, although numerous rooted cuttings have been annually planted, and fresh compost of the most approved description provided.

A. carnea, from the Pyrenees, bears flesh-pink flowers, and is of fairly easy culture in a good depth of moist, gritty loam. A. chamæjasme, an alpine plant, bears white yellow-eyed flowers, and forms spreading rosettes of leaves; it is partial to a limestone soil. A. lactea, from the Alps, has white, yellow-centred flowers and deep green, shiny leaves; it is one of the easiest to grow. A. Laggeri, a native of the Pyrenees, is also not of difficult culture; it forms dense rosettes of

sharp-pointed, glabrous leaves, not unlike a mossy Saxifrage, and bears its bright pink flowers sometimes as early as February. A. foliosa, from the Himalayas, is of strong growth, bearing rosy-red flower-heads on stems 6 inches or more in length, and having leaves 3 inches long and 1½ inch broad. A. villosa bears white, red-eyed flowers, and forms rosettes of hairy leaves.

The following species, mostly alpine plants, are best grown in the clefts between rocks:—A. Charpentieri, carmine-pink; A. glacialis, bright pink, changing to white; A. pyrenaica, snow-white, yellow eye, often blooming in February; A. Vitaliana, bright yellow; and A. Wulfeniana, rosy-pink. *S. W. F.*

HOME CORRESPONDENCE.

THE HORTICULTURAL HALL.—What a fuss some persons are disposed to make about nothing! The notice affixed to a board on the site of the new Horticultural Hall in Vincent Square is but the needful statutory notification that the Royal Horticultural Society's Council will apply to the London County Council for a music and dancing license, as without such license the Hall could not be let by the Council for concerts, bazaars, or even utilise it themselves for music of any description when money is taken at the doors. The securing of such a license secures the Society against all interference, and is needful in the case of every hall anywhere. Many Church-rooms, schools, &c., have similar licenses, to make any entertainments or concerts given in them legal proceedings. *A. D.*

JUDGES AT HORTICULTURAL SHOWS.—As the season has arrived when the various horticultural societies will be busy arranging matters in connection with their summer and autumn shows, perhaps it is well to remind them of the importance of selecting men as judges who are known to have a thorough practical knowledge of their work. This advice is all the more important on account of the growing anxiety and tendency of some men to get appointed as judges at horticultural exhibitions who never grew vegetables, fruits, or greenhouse plants in their lives, and yet have the confidence and impudence to offer themselves as judges and lecturers upon that which practically they know nothing at all about. I would advise committees of horticultural societies and others interested in horticultural work before selecting men as judges or lecturers, to carefully enquire as to their practical knowledge of the work they may be required to do, remembering that being able to talk is not the only qualification required—because all quacks can do that. What is wanted is a thorough practical knowledge of the difficulties encountered in producing specimens of the things exhibited, and of the qualities of the different varieties placed before them. To have things judged by good practical men is a compliment to the best of exhibitors, but to have them judged by horticultural quacks is an insult to the humblest cottager. *Amateur.*

COUCH-GRASS AMONGST FRUIT-TREES.—I would recommend "H. S." to plant Potatos beneath his fruit-trees, choosing a variety having a strong haulm, like that of Reading Giant. If the ground is in poor condition, a quantity of farmyard-manure should be incorporated with it. The digging and planting should go on at the same time, preferably in the latter part of April or the beginning of May, so that the tubers may be in the ground but a short time before starting into growth. If the hoe be regularly plied between the rows, the Couch-grass will be kept down until the Potato haulm gets strong enough to smother it, which is the object in view. When lifting the Potatos, all the ground should be carefully forked over, and all weeds shaken out, collected, and burned; the same process should be gone through next year, and if well done, I venture to say there will be very little Couch-grass left in the ground; and the crop of Potatos ought to pay for the extra labour. *J. Murray, Sopley Park Gardens, Christchurch.*

PEZIZA TUBEROSA (*Gard. Chron.*, May 28, 1887).—Last year a long row, a yard wide and thirty yards long, of Anemone blanda flowered and leafed luxuriantly. They have been there for ten years. This year there is in one place a gap of five yards, for which I could not account. I have observed to-day a quantity of fungus opening out on the surface. I make it out from Massee's book on plant diseases to be Peziza vesiculosa (figured on p. 162). On digging them up, I find them attached to the corms of the Anemone blanda. I send specimens. I have often seen this fungus on my rockeries, and have always considered it to be a saprophyte, and harmless to living plants. Will you kindly tell me whether you think it can be the cause of this wholesale destruction? [Yes. ED.] Since the flowering of the rest of the row of A. blanda, which was fine and healthy, I observe many seedlings of last year's shed seed of A. blanda coming up on the blank space. If the destruction is not due to the fungus I am at a loss to account for it. *C. W. Dod.* [Our illustration will suffice as a reply to our correspondent. ED.]

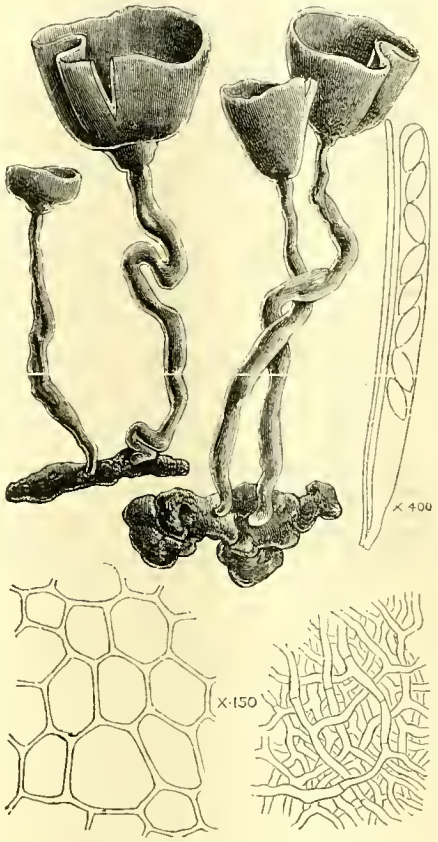

FIG. 85.—ANEMONE-BED FUNGUS (PEZIZA (SCLEROTINIA) TUBEROSA.

A NATIONAL PANSY AND VIOLA SOCIETY.—If the object sought by Mr. Treacher in his advocacy of a National Pansy and Viola Society be "the power to re-classify, and lay down new properties suitable to the present age," I think very little success will attend his efforts. The classification of the show Pansy, and the laying down of a code of properties, was done long ago; and it appears difficult to hit upon a more accurate arrangement of the English show Pansy—selfs, white grounds, and yellow grounds—than that to be found in a good Pansy catalogue. No classification of the fancy Pansies is desirable, other than that of differentiating them from the English show Pansies. The Viola Conferences held in Birmingham a few years ago, followed by one held in London, and a trial of Violas which took place in the gardens of the Royal Botanic Society, did something towards classifying the Violas, and laying down their properties. Following upon the London Conference came the formation of a National Viola Society, and the institution of a Floral Committee to deal with new varieties; but it experienced but an inglorious career, and soon became defunct. Its principal aim appeared to be to offer prizes for cut Violas and Pansies, with a few classes for them in pots. One prime cause of its dissolution was an undoubted tendency to exploit the society in the interest of the trade. Since then, a large number of varieties have been put upon the market as being suitable for exhibition purposes, and many of them are vulgar floral abortions, quite unfit for garden decorations. And when the President of the London Conference expressed the opinion that the Viola was out of place in the spring flower-garden, the public took alarm. What is badly wanted is, a good hardy race of Violas which will bloom late in the autumn and in early spring with the Crocus. That is a desideratum worthy of working for, and anyone who will lead up to such a result will be a benefactor to gardeners. The most popular varieties found in the summer flower-garden of the present day are those of some years' standing, and any additions to our named varieties of Violas are unnecessary. A reference to one of the leading catalogues shows 139 named varieties! *R. Dean, Ealing.*

FORCING STRAWBERRIES.—I have practised the following method for some time, and have always had excellent results:—Pots known as large 60's are used for layering, and in these pots the plants remain until brought in for forcing. When the pots are filled with roots, liquid manure is freely applied, and with full exposure to the sun, well ripened crowns are obtained by the end of the autumn. In November, before severe frost sets in, they are plunged to the rim in coal-ashes. In January a bed of tree-leaves, with 9 inches of soil on the top, is made up in a low house or brick pit. In this bed the Strawberries are planted about 9 inches or a foot apart. The house is kept as cool as possible, to enable the roots to get a good start of the foliage, which they will soon do, with the help of the genial heat of the leaf-bed. In about three weeks' time forcing begins in earnest, with a night temperature of 60°, rising to 65° as the flowers appear, and ventilation on favourable occasions. As the plants get established, they are liberally fed until the fruit begins to colour. For later supplies, a stage with 9 inches of soil will answer the purpose. *J. Murray, Sopley Park, Christchurch.*

CARNATION "MRS. T. W. LAWSON."—At the meeting of the Royal Horticultural Society at the Drill Hall, on January 13, I was told by a titled lady, that the Carnation Mrs. T. W. Lawson, was raised at Dumfries, by a gardener there, who tried to sell it in England, but could not get a good price for it, and consequently sent it to America, where he did get one. Come from where it may, the flowers are a lovely colour when grown in a cool-house, but if afforded too much heat, they do not attain that rich cerise colour so much admired. *S. G. Brooks.*

"SIR WATKIN" PEERLESS NARCISSUS.—If your correspondent, "B.," will actually compare your illustration of "Sir Watkin," *Gardeners' Chronicle*, March 21, p. 177; or, better still, a typical flower of the same with Passe's figure in *Hortus Floridus*, or the engraving in Hill's *Eden*, or with that of Parkinson in his *Paradisus*, I do not think he will feel quite sure that all the three illustrations represent the same thing, and to my mind none of them represent the variety we call "Sir Watkin" to-day; but two of them are intended to show the common N. incomparabilis, in one or other of its many forms. The first time I saw a flower of "Sir Watkin," it was sent to me in a small box per post from Messrs. Dickson & Sons, of Chester, and arrived in the old conservatory of the Royal Horticultural Society at South Kensington, just before the business of the first Narcissus Conference of 1884 began. The flower was wilted a little, still I at once saw that it was something we had never seen before. I showed the flower to one noted expert, who at once said, "Oh, N. incomparabilis." "Yes," I replied; "but is it not the largest one you ever saw?" Then we looked round the exhibition, but could find nothing like

it in size and substance anywhere on the tables. N. incomparabilis type is = N. pseudo-Narcissus × N. poeticus; but Sir Watkin looks more like the result of N. incomparabilis crossed back again with some form of Daffodil like N. lorifolius. Mr. Engleheart could enlighten us on this point, as he has reared some very beautiful and large white and bicolor Narcissus of the Sir Watkin type, though much finer in form, colour, and texture. No one could confound the figure of Parkinson's "nonpareille, the incomparable Daffodil" (1629), with either of those in Crispin Passe's work of 1612-14, which have curled brims or margins to their cups, having probably been drawn from fading specimens. Hill's figure on Plate 41 is simply reversed from Passe's figure on Plate 4, and I have found that many, even if not most of the illustrations in his *Eden* are conveyed or translated from other works. His matter also is cooked up on the supposed-to-be-modern scissors-and-paste principle, except that it is not quoted, but transferred and amalgamated with his own view. Hill's *Eden* was, in a way, a popular parody on Miller's *Gardeners' Dictionary*, with figures added on up-to-date principles, as we should now say. For illustrations he seldom went direct to Nature, but took freely from the great *Hortus Eystettensis*, and the rare *Campi Elysii* of Rudbeck, as well as from the *Hortus Floridus* of Crispin Passe, jr., and other books anterior to his own. Even Parkinson is not quite above the suspicion of having made up his figures from other sources, although they were all originally engraved on wood for his *Paradisus*. The plain fact is, that these old figures deserve but little credence, being but little more trustworthy than the very ambiguous descriptions which accompany them. *F. W. Burbidge.*

COMMISSIONS, SECRET OR CORRUPT. — I cannot think "Investigator" (see p. 172 of a recent issue) knows what he is writing about when he states that the question of commissions is the cause of the low wages paid to gardeners. The amount a gardener receives in commissions, unless it is in a very large garden, must be small, and hardly worth troubling about; and if a gardener is in charge of a large garden, his wages are fairly good. I am in charge of a fair-sized garden, and the amount I should receive if I took commission would not make a great addition to my salary. I average about £18 for seeds, £20 for bulbs, £10 or £12 for new plants, £10 for artificial manures, £8 for sundries, and £70 for coal. I have yet to hear of the coal-merchant who gives commission. Of course, I could make up a little more if, as "Investigator" says, I increased my requirements, but I can get a lot of seeds, bulbs, and new plants for £50; and how many owners of small and medium-sized places go in for collections of seeds and bulbs, and think they can get all they require for £8 or £10, and often less? The cause of low wages arises from the fact that gardening is overstocked with men, and that employers in a good many instances will take a man with very little garden training, because he will come for a few shillings a week less wages than a properly qualified man would do. How many "single-handed" places are there where the situation is filled by men who have been employed for a few months as a garden labourer, or as a labourer in some nursery, and comes out a full-fledged gardener? The only way, I think, to get the standard of wages higher, is that employers and owners of gardens should insist that the gardener should be able to show some certificate of efficiency, such as a number of years' character from some large garden; or better still, a certificate from the Royal Horticultural Society, stating the man had passed one of their examinations. *W. J. P.*

—— I think our Mushroom head gardener of eight months' standing, who signs himself "Clean Slate," ought to have waited until he had served in the capacity of head gardener for a much longer period, before committing his short lived experience to the columns of your valuable paper. He condemns the practice of taking discount, but sooner than cause friction (with whom he does not inform us), quietly accepts 1s. in the £, and hands it over to the Gardeners' Orphan Fund—a most excellent cause to receive the benefit of his so-called honest dealings; but at the same time I fail to see why "Clean Slate" should fall away from his good principles, instead of standing to his colours like a man, returning the money, facing all friction, and showing older hands like myself a bold and fearless front. The secret commission business affects all trades proper more or less, and if a nurseryman likes to give a gardener a small present of a few shillings occasionally I see no harm in his accepting them. A gardener's wages are not usually so very handsome that he can afford to discard any little thing that may come in his way. A generous-minded employer would not take the slightest notice of trifles of that kind, providing his head-gardener was a man that suited him, and looked well after his business, and studied to the best of his abilities the interest of his employer in the hard round of mental and physical labours combined very often which fall to the lot of head-gardeners and others holding responsible positions. *R. Brown.* [We have received numerous other letters to the same effect. ED.]

Obituary.

WM. FELL, NURSERYMAN, HEXHAM.—The deceased was found dead in bed on Sunday morning last, at his residence, Priestpopple, Hexham. He was on the previous day at Newcastle market, engaged in his usual routine work. He returned to Hexham, and was engaged writing till 10 o'clock in his office. Mr. Wm. Fell was very popular as a nurseryman, and highly respected by farmers, gardeners, and foresters in the North; he was greatly esteemed because of the great interest he took in the formation of the English Arboricultural Society, in whose interests he worked hard from its inception, and of which at the time of his death he was the senior vice-president. He, in conjunction with Mr. William Milne, bought the old-established nursery and seed business of Mr. Jos. Robson, Hexham, and by his energy and business ability, he very soon developed it to an extraordinary extent, both in America, Ireland, the Isle of Man, and on the Continent, and perhaps no firm has ever sold, or been the means of distributing, so many of that well-known Gooseberry, Whinham's Industry, as it has done. In every other nursery department the same success was achieved. Some few years ago the firm was appointed Royal seedsmen, and about three years ago it was turned into a limited liability company, so as to further extend their business connections abroad, with Mr. Wm. Fell and Mr. Wm. Milne as managing directors. Mrs. Fell predeceased her husband some seven or eight years ago, and there are six sons to mourn his loss. The inquest was held on Monday, when the jury returned a verdict of death from syncope. *Bernard Coward.*

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 24.—The Drill Hall, Buckingham Gate, Westminster, was crowded with exhibits on Tuesday last, when the ordinary fortnightly meeting of the Committees was held. The display was composed of the best garden plants in season, and there were many exemplary instances of high and successful cultivation, but new plants of importance were not numerous.

Orchids were numerously shown, and the ORCHID COMMITTEE recommended awards, including one First-class Certificate, and three Awards of Merit.

There were but three novelties that gained awards from the FLORAL COMMITTEE, and these included the rare double white variety of the common Anemone Hepatica, the existence of which some critics have regarded with considerable doubt; Incarvillea grandiflora, and a sport from the fragrant Boronia megastigma, having creamy-yellow flowers. The same Committee awarded twelve medals to groups of plants and flowers, amongst which collections of hardy and alpine plants were a prominent feature.

The NARCISSUS COMMITTEE recommended Awards of Merit to three new varieties, and five medals to exhibits of flowers.

The FRUIT AND VEGETABLE COMMITTEE had again but little work to get through. An Award of Merit was recommended to a new culinary Apple Edward VII., and there was a collection of Apples shown by Messrs. JAS. CHEAL & SONS.

In the afternoon an interesting lecture was delivered by Mr. MARTIN DUNCAN upon "Photomicrography," which was illustrated by a very large number of lantern views. The lecture showed what valuable aid the camera is capable of affording to botanists and others engaged in research work, and in the study of micro organisms.

A large number of new Fellows were elected to the privileges of the Society, and the number elected during the first three months of this year is 110 in excess of the number elected in the same period of 1902.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. C. T. Druery, G. Nicholson, R. Dean, J. Green, J. F. McLeod, J. Jennings, J. Hudson, A. Perry, W. Howe, J. A. Nix, C. R. Fielder, C. Dixon, W. Bain, Chas. Jeffries, R. W. Wallace, E. T. Cook, Geo. Gordon, Chas. E. Shea, W. P. Thomson, E. H. Jenkins, M. J. James, E. Blick, H. Turner, Geo. Paul, J. H. Barr, and R. C. Notcutt.

A first class group of Clivias was shown on this occasion by O. O. WRIGLEY, Esq., Bridge Hall, Bury (gr., Mr. E. Rogers). The plants were not shown, but the excellent umbels were arranged in vases, with plenty of natural foliage, that at first sight they had quite the appearance of plants; the depth of colour in the flowers was unusually good (Silver Flora Medal).

Messrs. HUGH LOW & Co., Bush Hill Park nurseries, London, N., contributed a group in which forced Tree or Mowtan Pæonies were conspicuous, and a few other choice flowering plants were included.

Cineraria stellata, from Messrs. H. CANNELL & SONS, Swanley, Kent, who had a large group, was a good strain of this type, which is now popularly known. The flowers were small, numerous, stellate, and possessed considerable variations in colour.

Messrs. H. CANNELL & SONS showed a plant of Agave horrida in flower, about 7 or 8 feet high. The species has seldom bloomed in this country.

Messrs. W. BULL & SONS, New Plant Nursery, King's Road, Chelsea, exhibited a group of choice foliage plants, which were shown in excellent condition. The useful variegated Dracæna Victoria, Thrinax elegans, one of the most graceful of the fan-leaved Palms; Geonoma gracilis, Dracæna Doucetti, varieties of Codiæums, Cordylines, &c.

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, exhibited a group of miscellaneous plants, in which Clematises in flower were again a feature, and finely flowered Gardenias. Some choice varieties of Tree Carnations, the new Rambler Rose "Leuchtstern," exhibited as a pot plant; Adiantum tenerum Farleyense, Hydrangea Hortensia "Thomas Hogg," Boronia heterophylla, &c., were included (Silver Flora Medal).

The new variety of Carnation, "America," frequently shown at the Drill Hall on previous occasions, was exhibited in splendid condition by Mrs. BURNS, North Mymms Park, Hatfield (gr., Mr. C. R. Fielder), who had a very large group of plants, each bearing two to five flowers and buds. The variety is strongly fragrant and the flowers of large size, excellent form, and bright red in colour. The calyces appear never to split (Silver Flora Medal).

FRANK LLOYD, Esq., Coombe House, Croydon (gr., Mr. E. Mills), exhibited a group of freely-flowered plants of Primula obconica, being of the white flowered strain.

Mr. GEO. MOUNT, of the Rose Nurseries, Canterbury, made a display with 150 or more blooms of fragrant Roses, the varieties Catherine Mermet, Mrs. W. J. Grant, Mrs. John Laing, and Captain Hayward, being shown in greatest numbers and in fine condition (Gold Medal).

From Mr. E. POTTEN, Camden Nursery, Cranbrook, Kent, came an exhibit of Roses in pots, amongst which were included most of last season's novelties; also flowers of St. Brigid Anemones, cut from the open ground.

Messrs. B. R. CANT & SONS, The Old Rose Nurseries, Colchester, exhibited a group of pot plants of a new climbing Polyantha Rose named Blush Rambler, obtained from a cross between Turner's Crimson Rambler and another. The plants were 6 feet high or more, and were abundantly flowered. The blooms are blush-pink, not unlike the pink of Apple blossoms;

and the habit of growth appears to be very similar to that of Crimson Rambler. It is a very pretty variety.

HOBBIES, LIMITED, Dereham, Norfolk, showed small plants in 3-inch pots of a single-flowered Rose, described as a Perpetual Crimson Rambler, and named Bedding Gem. The flowers are crimson, and the variety is recommended for bedding purposes, for which it would doubtless be quite suitable.

Cineraria Feltham Beauty was again exhibited in a group by Messrs. JAS. VEITCH & SONS. As we have described this plant before, it is a selection from C. stellata, having a more compact habit of growth, and possessing much variation in colour.

Messrs. JAS. VEITCH & SONS also showed a group of plants of Cineraria ramosa. This is also of the stellata type, but it comes true to colour, a light, pleasing purple, and grows from 2 to 3 feet high. The inflorescence branches considerably, and is very distinct from the type described above. Messrs. VEITCH had also a group of plants of Primula × Kewensis, and of the greenhouse Rhododendron, R. Veitchianum, with pure white flowers; and a group of plants of the new evergreen species Jasminum primulinum, illustrated in fig. 83, p. 197. These plants were in pots, but some sprays were shown from a plant growing upon an outside wall, where it has been during two winters. The flowers are similar to but much larger than those of J. nudiflorum (Silver Flora Medal).

An exceedingly large plant of the old variety of Hippeastrum Empress of India was shown by J. COLLARD VICKERY, Esq., Leigh Holme, Streatham, S.W.; and in close proximity were eight flowers in as many varieties, representing the newest types of Hippeastrums, from Lord ROTHSCHILD's garden, Tring Park, Tring (gr., Mr. E. Hill). These were of remarkable merit, possessing good form and rich colours.

A group of Japanese Maples, and a few plants in bloom of Rogiera cordata, was shown by Messrs. T. CRIPPS & SON, Tunbridge Wells, Kent.

Messrs. R. & G. CUTHBERT, Southgate Nurseries, Middlesex, had a ground group of forced shrubs, including many varieties. Particularly good were the varieties of Rhododendron mollis, especially the well known Anthony Koster. The Lilacs also were capital, and included Marie Legraye, Madame Lemoine, and Charles X. (Silver Gilt Banksian Medal).

Messrs. B. S. WILLIAMS & SON, Victoria and Paradise Nurseries, Upper Holloway, London, N., exhibited a group of forced Rhododendrons, Viburnums, and other shrubs.

Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, N., showed a fine group of forced shrubs, and bunches of beautiful Carnations (Silver Banksian Medal).

HARDY PLANTS.

Messrs. R. WALLACE & Co., Kilnfield Gardens, Colchester, exhibited amongst their hardy plants, which were shown mostly in pans or baskets: Erythronium revolutum var. Watsoni, having larger, whiter flowers than those of the species E. Hendersoni, E. giganteum, Anemone Pulsatilla, Fritillaria aurea, F. pallidiflora, F. Meleagris alba, one of the best of the varieties growing 15 in. or 18 in. high, and having whitish, widely expanded flowers; also Tulipa Greigi, and other species, and several of the choicer varieties of Narcissus (Silver Banksian Medal).

From the Guildford Hardy Plant Nursery, Mill Mead, Guildford, came a very neat little artificial rockery, planted with dwarf alpine species. Primula frondosa, Saxifraga apiculata, Thalictrum anemonoides, Atragene alpina, Anemone Pulsatilla, &c., were in flower.

Mr. JNO. R. BOX, West Wickham and Croydon, showed alpine plants in boxes, with pieces of rock amongst them. One box alone contained twenty varieties of Sempervivum, established in the box twelve months. A good collection of Saxifragas was shown, one variety in each box, established five and six years. S. cristata, S. spiculata, S. cotyledon, S. valdensis, &c., were represented by good and big pieces.

Mr. H. C. PULHAM, Elkenham, Essex, exhibited a few hardy and alpine plants.

Messrs. EGGETT & SON, Thames Ditton, exhibited a few photographs of artistic rockwork for ferneries, or the out-of-door rockery.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, near Crawley, had a few alpine plants, in which, species of Primula were the most conspicuous plants in flower.

Messrs. THOS. S. WARE (1902), LTD., showed a rather smaller group of Alpine plants than usual, but it was very bright, owing to the several varieties of Primula Sieboldi in flower; Ajuga metallica crispa, a blue flowering variety, with flowers included, was only 1½ inch high, was quite lost amidst the more showy species; Aubrietias in variety, Saxifraga apiculata, and many other plants were in bloom.

Mr. R. ANKER again showed Cactaceous plants, most of them diminutive in size.

A group of well-flowered Cyclamens was contributed by Col. ROGERS, Franklands, Burgess Hill (gr., Mr. Murrell (Silver Flora Medal).

Messrs. W. BALCHIN & SONS, Hassocks Nursery, near Brighton, had a small group of hard-wooded greenhouse plants, including Tetratheca ericoides, Darwinia [Genetyllis] fuchsioides, Acacia diffusa, and Boronia megastigma, a variety of which is mentioned under "Awards."

A seedling variety of Souvenir de la Malmaison Carnation, named "Yellow Gem," was shown by MARTIN R. SMITH, Esq., Hayes, Kent (gr., Mr. C. Blick).

Mr. R. SYDENHAM, Tenby Street, Birmingham, showed Daffodils and other bulbous plants, growing in prepared fibre.

Mr. G. REUTHE, Hardy Plant Nursery, Keston, Kent, had a few hardy plants, including Erythronium Smithi, with large white flowers, 1 foot high; Anemone blanda, Saxifraga Grisebachi, &c.

AN AMATEUR'S FINE EXHIBIT.

An excellent group of hardy and alpine plants, most of them in flower, was shown by E. A. HAMBRO, Esq., Hayes Place Gardens, Hayes (gr., Mr. Beale). The best specimen of the new Fritillaria askhabadensis in the Hall was in this collection, and there were strong and abundantly-flowered plants of a number of varieties of Primrose, Primula floribunda, P. nivalis, and other species. Erythronium Hartwegi, Aubrietias, the new Saxifraga Grisebachi, and many other new and choice hardy plants were represented in good condition. (Silver Flora Medal).

Messrs. GEO. JACKMAN & SON, Woking Nurseries, Surrey, showed a large number of hardy plants in miniature rockwork. Some of the most attractive species were Lithospermum prostratum, Ramondia pyrenaica, Primula rosea, and other species. Varieties of Primrose, Anemone pulsatilla, A. fulgens, &c. An Incarvillea is described under "Awards" (Silver Banksian Medal).

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., in addition to a collection of Daffodils, had a few hardy plants, amongst which Erysimum helveticum, "Golden Gem," is a very pretty variety of nice habit. They had also Gerbera Jamesoni, flowers of the beautiful Muscari "Heavenly Blue," and species of Primula.

Flowers of Anemone fulgens from Messrs. GILBERT & SON, Dyke Bourne, Lincolnshire, and plants of a variety of Anemone angulosa, known as lilacina grandis, a beautiful variety from A. R. GODWIN, Esq., The Elms, Kidderminster, were greatly admired.

Messrs. SANDER & SONS, showed a fine batch of their Retinospora Sanderi (hort.), a very effective little hardy Conifer for rock-gardens, window-gardens, and similar situations. It forms compact globose heads of bluish foliage, with the spreading obtuse leaves in four ranks, as in some Junipers or Thuyas. The name must be taken provisionally, for at present the exact nature of the plant is not ascertained, and we must wait till it shows itself in its true character. The Retinosporas of gardens, as is now abundantly proved, are merely stages of growth of certain species of Juniperus, Thuya, or Cupressus. Not unfrequently, two or three of these forms are produced simultaneously on one bush, say of Cupressus pisifera, so that their origin is beyond dispute.

Awards.

Boronia megastigma aurea.—This variety occurred as a sport in the collection of Messrs. W. BALCHIN & SONS, Hassocks Nursery, Brighton. The flowers have no brown colour, like those of the type, but are pale creamy yellow (Award of Merit).

Anemone Hepatica triloba alba plena—This double white variety of the common Hepatica was shown by Miss WILLMOTT, Warley Place, Great Warley; there being two pansful of plants, which were freely flowered (First-class Certificate).

A few cut flowers of a double white variety were also shown by Messrs. H. CANNELL & SONS, which had been received from the Continent partially withered.

Incarvillea grandiflora.—A plant of this species was shown by Messrs. GEO. JACKMAN & SON, Woking. The plant has shorter leaves and rounder, more undulated leaflets than those of I. Delavayi. The first flower is generally about 8 or 9 inches high, and others are subsequently produced from a lower part of the same stem, the stem continuing to grow. The colour of the flowers is a much deeper rose colour than those of I. Delavayi, being nearly magenta, and on each of the three lower segments there are two white lines proceeding outwards from the back of the yellow throat (First-class Certificate).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (hon. sec.), De B. Crawshay, J. Colman, W. Cobb, H. Little, H. A. Tracy, J. G. Fowler, F. Wellesley, F. W. Ashton, H. T. Pitt, J. W. Potter, W. A. Bilney, E. Hill, H. J. Chapman, A. A. McBean, T. W. Bond, H. Ballantine, J. W. Odell, W. Boxall, F. J. Thorne, W. H. Young, W. H. White, and Norman C. Cookson.

Orchids were again extensively shown, the Dendrobiums, which had been the principal feature at the two last meetings, being present in lesser quantity, and the Odontoglossums taking prominence.

NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman), was awarded a Silver-gilt Flora Medal for a fine group, in which his famous hybrid Phaius were finely represented by some three dozen plants, grown and flowered to perfection. The greater part were varieties of the beautiful Phaius × Norman, scarcely two alike, the colours varying from the variety "aureus," with yellow and light rose flowers, to the dark coloured "atrorubeus." As a single specimen, Phaius × Cooksoni, a grand, leafy plant, with thirteen strong flower-spikes, justly secured a Cultural Commendation; and the richly coloured Phaius × Harold (see Awards), told of further advances. With the Phaius were Odontoglossum × Adrianæ "Doris," a large and prettily shaped flower, evenly spotted with reddish-cinnamon-brown; the still more showy O. × excellens Cooksoniæ, O. × Rolfeæ "Oakwood variety," and Dendrobium × Aspasia "Oakwood variety."

Captain G. L. HOLFORD, Westonbirt (gr., Mr. Alexander), was awarded a Silver Flora Medal for an excellent group of rare things, excellently well grown. The central plant, the very remarkable hybrid Cymbidium × eburneo Lowianum concolor, secured the only First-class Certificate; and with it were Odontoglossum crispum "Mrs. Lindsay," one of the very finest pure white forms; O. c. guttatum, of the broad "Pacho" type, a noble flower, with some distinct blotching on the sepals; a number of other good forms of O. crispum, one with seventy two flowers on a spike; O. × Adrianæ, two fine forms of O. × elegans, O. × Harryano-crispum giganteum, with very large and finely marked flowers; two specimens of scarlet Sophronitis, one with eighteen and the other twenty-four flowers; and Zygopetalum × crinito Gautieri, with fine purplish-blue and white labellum.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), secured a Silver Flora Medal for a fine group, the three prominent plants in which were the extraordinary Odontoglossum × Wickeanum Pittianum, with very large pale yellow flowers, beautifully marked with red-brown; O. × Adrianæ var. Cobbianum, the finest dark Adrianæ known, the greater part of the flower being of a dark chocolate colour, with pretty yellow and white markings in the inner parts of the segments. Both had previously secured First-class Certificates. Also among Mr. PITT's Odontoglossums were the fine blotched O. c. Abner Hassell, good O. × Andersonianum, O. Ruckerianum, and other Odontoglossums; Dendrobium Farmeri album, D. dixanthum, D. Victoria Regina, Cymbidium × eburneo-Lowianum, Epidendrum × Endresio-Wallisii, and a selection of hybrid Cypripediums.

Mr. JAS. CYPHER, Cheltenham, staged a good group of finely-flowered Orchids, the Dendrobiums, for which the firm is noted, predominating. Among the forms of D. nobile noted were D. n. Cypheri, a very pretty and distinct form; D. n. Heathi, a model flower, coloured like D. n. nobilius; D. × Virgil, and other fine forms of the splendidissimum class, one of the best being D. × rubens magnificum; D. × Lutwychianum, finely grown and flowered; D. × Cheltenhamense, the distinct D. aureum sulphureum, which would probably be useful for crossing; D. × Schneiderianum, D. Brymerianum, fine examples of Miltonia Roezlii, Trichopilia suavis, Epiphronitis × Veitchi, Sophronitis grandiflora, Cypripedium villosum giganteum, C. × Pollettianum, &c. (Silver Flora Medal).

Messrs. SANDER & SONS, St. Albans, staged an effective group, the central plant of which was the rare Cymbidium Lowianum concolor, of an uniform delicate yellowish tint; good varieties of Odontoglossum × Wilckeanum, O. loochristyense, O. × Adrianæ, O. triumphans latisepalum, and O. crispum; also the dark coloured Phaius × Norman nigrescens, Miltonia × Bleuana nobilior, and varieties of Epidendrum × Endresio-Wallisii (Silver Banksian Medal).

Mr. OTTO BEYRODT, Marienfelde, Berlin, showed a group of hybrid Odontoglossums, composed principally of forms of O. × Adrianæ, exhibiting great

variation; also O. × Beyrodtianum, white, blotched with brown, and resembling a small O. × Wilckeanum; and the beautiful Cattleya Trianæ cœrulea, with white flowers, slightly tinted with lavender, and with a purplish-blue blotch on the lip (Silver Banksian Medal).

Messrs. JAS. VEITCH & SONS, Chelsea, staged an effective group, in which the two novelties were Dendrobium × Ainsworthi "Elsie" (aureum × nobile Ballianum), a fine and delicately tinted flower; and Lælio-Cattleya × Thyra (C. Schroderæ × L.-C. × Hippolyte), in form resembling L.-C. × Hippolyte, but with rich yellow sepals and petals, and purple labellum. The group also had a good selection of Dendrobiums, including D. × Socius, D. Euryalus, D. × euosmum ioseum, and very finely flowered D. crassinode, &c. Also varieties of Epidendrum × elegantulum, and other hybrids.

The Hon. WALTER ROTHSCHILD, M.P. (gr., Mr. E Hill), again showed the fine Lælio-Cattleya × Digbyano-Mendeli, "Tring Park variety," for which he received a First class Certificate, May 7, 1901.

FRANCIS WELLESLEY, Esq. (gr., Mr. Gilbert), showed Lycaste Skinneri, Westfield variety, a pretty rosy-crimson flower with white labellum.

R. G. THWAITES, Esq., Streatham (gr., Mr. J. M. Black), showed Dendrobium nobile Murrhinianum magnificum.

Messrs. HUGH LOW & Co. showed a selection of Orchids, including Cypripedium niveum, Low's variety, and Lælia Cowani.

Mr. JAS. DOUGLAS showed a hybrid Cattleya, near to C. × Wm. Murray.

DE B. CRAWSHAY, Esq. (gr., Mr. Stables) showed Odontoglossum × loochristyense Venus, O. triumphans Regina, and O. t. Czar.

J. RUTHERFORD, Esq., M.P. (gr., Mr. Lupton), sent Odontoglossum × bearwoodiense (? Peacatorei × elegans Eastwood Park variety), yellow marked with brown.

Sir FREDERICK WIGAN, Bart. (gr., Mr. W. H. Young) showed a fine specimen of the singular Megaclinium falcatum.

F. W. MOORE, Esq., V.M.H., Glasnevin Botanic Gardens, Dublin, sent a fine inflorescence of the remarkable Eulophiella Peetersiana with large wax like white flowers, tinged with rosy-lilac.

Awards.

FIRST-CLASS CERTIFICATE.

Cymbidium × eburneo-Lowianum concolor (eburneum × Lowianum concolor), from Captain G. L. HOLFORD, Westonbirt, Tetbury (gr., Mr. Alexander), the finest of the hybrid Cymbidiums. Flowers much larger than in the hybrids of typical C. Lowianum, and of a delicate yellowish cream colour. Lip white with light purple markings in front, and with a yellow callus.

AWARD OF MERIT.

Phaius × *Harold* (Norman × Sanderianus), from NORMAN C. COOKSON, Esq. (gr., Mr. H. J. Chapman).—Flowers large, and finely formed. Sepals and petals reddish-copper coloured, lighter at the backs. Lip large, and well expanded, reddish-purple, with bright yellow lines running from the base.

Cymbidium × *Lowgrinum* (Lowianum × tigrinum), from R. I. MEASURES, Esq., Cambridge Lodge, Camberwell (gr., Mr. Smith).—A very interesting and pretty hybrid, of the dwarf growth of C. tigrinum, and with flowers more nearly like that species. Sepals and petals yellowish-green; lip white, with a purplish-brown marking on the front lobe, as in C. Lowianum.

Odontoglossum × *Adriance* "*Swoboda*," from Mr. OTTO BEYRODT, Marienfelde, Berlin.—A very pretty and distinct form, with broad sepals and petals of whitish tint, tipped with yellow, and bearing broad chestnut-brown markings; lip white, finely crimped and fringed, and spotted with brown.

CULTURAL COMMENDATION.

To Mr. H. J. Chapman, gr. to NORMAN C. COOKSON, Esq., for a noble specimen of Phaius × Cooksoni, with thirteen spikes of flowers. These hybrid Phaius are used for house decoration at Oakwood, and are said to be none the worse for a spell in the dwelling-house.

To Mr. Cleverley, gr. to M. FOURNIER, Marseilles, for Cymbidium × eburneo-Lowianum with two spikes, the plant being three years old from the time of sowing.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq., chairman; and Messrs. Jos. Cheal, A. Melville, W. Bates, S. Mortimer, A. Dean, E. Beckett, W. Pope, H. J. Wright, G. Kelf, H. Eslings, P. C. M. Veitch, F. Q Lane, J. Jacques, G. Reynolds, J. Smith, W. Crump, G. Norman, C. G. A. Nix, S. T. Miles, O. Thomas, and A. H. Pearson.

Mr. E. Beckett brought up from Lord ALDENHAM'S garden, Aldenham House, Elstree, a box of six dozen excellent and well-coloured Royal Sovereign Strawberries, receiving a Vote of Thanks.

From the WOMEN'S HORTICULTURAL COLLEGE, Swanley, Kent, came baskets of Paris White and All-the-year-Round Cabbage-Lettuces, grown under glass, nice and clean, but wanting another ten days to make them into useful salading. The Paris White variety, resembled the old Leyden White Dutch variety (Vote of Thanks).

The only other exhibit was one of sixty dishes of Apples, and twenty-nine fine Catillac and Duchess de Mouchy baking Pears, staged by Messrs. CHEAL & SONS, Crawley, Sussex. Of the Apples, many dishes were a long way past their best, and were greatly shrivelled. The best samples were Monarch, Newton Wonder, Bramley's Seedling, Gloria Mundi, Lane's Prince Albert, Mère de Ménage, Hormead's Pearmain, Baumann's Red Reinette, London Pippin, Ribston Pippin, and Sandringham. A Vote of Thanks for the collection was given. Evidently the Committee wish it to be understood that Apples kept too long, and shrivelling, have little merit. Only finely finished fruits that have been stored in cool, equable, and not too dry houses, can be kept in good condition from five to six months after being gathered. When it is seen what beautiful examples New Zealand is now sending us, it is evident that only handsome, well-kept, home-grown fruits can meet with appreciation.

AWARD OF MERIT.

Messrs. W. B. ROWE & SONS, Worcester, sent again a quantity of their fine late cooking Apple, Edward VII. The variety is the product of crossing Blenheim Pippin with Golden Noble, and whilst the fruits are of about Golden Noble size and colour, are smooth, and have bases as in that variety, they have the open eye of the Blenheim. The fruits shown were rather past their best, but it is evidently a capital late kitchen Apple. Mr. W. CRUMP testified as to its abundant and early cropping qualities.

Narcissus Committee.

Present: H. B. May, Esq., chairman; and Messrs. W. T. Ware, R. Sydenham, Jno. Pope, W. H. de Graaff, G. Reuthe, A. R. Goodwin, G. S. Titheridge, C. H. Curtis, E. Willmott (Miss), J. Walker, W. Poupart, P. R. Barr, W. F. M. Copeland, J. D. Pearson, and Rev. S. Eugene Bourne.

A considerable number of flowers, usually mid-season in period, came before the Committee on this occasion, and there was every appearance of Narcissi coming on in full flood before another session.

Two excellent collections of Narcissus flowers were staged by Miss CURRIE, Lismore, Ireland; and Messrs. BARR & SONS, King Street, Covent Garden, W.C. A Silver Flora Medal was awarded in each case.

Bronze Banksian Medals were awarded for Narcissus flowers shown by Messrs. T. S. WARE (1902), LTD. Feltham; Mr. REUTHE, Keston, Kent; and Mr. R. SYDENHAM, Birmingham

HYACINTH AND TULIP COMPETITION.

There was poor competition for the prizes offered by the Royal Bulb Growing Society of Haarlem, for 120 Hyacinths in pots, in not fewer than forty varieties; and 100 pots of Tulips, in not fewer than fifty varieties. In the class for Hyacinths, two firms competed, Messrs. GULDEMOND & SON, Lisse, Holland, and Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, N., the 1st prize being awarded to the Dutch firm.

Messrs. CUTBUSH & SONS were the only exhibitors in the class for Tulips. The season being so unusually early, bulbous plants in pots are becoming past their best.

AWARDS OF MERIT.

N. Firelight.—An incomparabilis variety, similar to C. J. Backhouse, but smaller in size, and of brighter colouring.

N. Mohican.—A fair-sized, red-cupped, Burbidgei variety, with white segments. Both varieties were shown by Mrs. R. O. BACKHOUSE, Sutton Court, Hereford

N. Janet Image.—A large-sized Leedsii variety of pale sulphur colour, with large citron coloured crown. Shown by Messrs. BARR & SONS.

CHESTER PAXTON.

THE last of a series of lectures was given at the Grosvenor Museum on Saturday, when Mr. W. White, Bolesworth Castle Gardens, gave a paper on "Notes on Bedding Plants in London Parks and Gardens." He gave some interesting particulars on the spring and summer bedding in the London parks. At this meeting it was decided to hold the usual exhibition of spring flowers in the Museum on 15th and 16th prox.

READING & DISTRICT GARDENERS'.

MARCH 16.—At the meeting on the 16th inst. there were about 120 members present. Mr. W. Barnes, of Bearwood gardens, presided. The subject for the evening was "Buttonholes and Sprays," by the Chairman of the Association, Mr. J. T. Powell.

Before giving his practical demonstration of this art, he said that this was one of the phases of gardening which gave much delight and pleasure to the employer, and it was a great deal of credit to the garden staff if the sprays and buttonholes required could be made in the garden. Mr. Powell then showed how flowers should be wired, describing the right and wrong way of doing the work, also showing which was, in his opinion, the best foliage to be used with particular flowers. The following were then made up in front of the audience, explanation being given as the work proceeded:—Buttonhole of Violets, lady's dinner or ball spray of Daffodils, lady's spray of Primulas, a "Carnation" buttonhole made with pink Primulas, lady's spray of General Jacqueminot Roses, and a lady's spray of artificial Pelargoniums with natural foliage.

THE ROYAL BOTANIC AND HORTICULTURAL SOCIETIES.

WE are requested to publish the following letter, which has also appeared in the *Times* for March 18:—

SIR,—In the report of the proceedings of the meeting of the Royal Botanic Society, in your issue of the 16th inst, Mr. Pembroke Stephens, K.C., is reported to have said, "The matter" (? the amalgamation of the Royal Botanic and Royal Horticultural Societies) "had arisen out of a letter written by Lord Lister, on their behalf, offering the use of their beautiful gardens for the exhibitions of the Horticultural Society." To this letter Mr. Stephens said that "they" (the Royal Botanic) "had not had a direct reply as to whether the proposal would be entertained." When I mention that Lord Lister's most courteous and kindly letter was dated as long ago as December 24, 1901, that it was replied to in the terms of the minute of Council, given below, on January 14, 1902, and acknowledged by Lord Lister as "your courteous reply," it will be seen that Mr. Stephens was imperfectly acquainted with the correspondence. To the best of my belief, Lord Lister's name was not mentioned, nor his letter referred to, at the meeting of the Royal Horticultural Society on the 10th ult. My remarks at that meeting were in reply to questions, and had reference to suggestions of an informal and unofficial character made to me by gentlemen interested in the Royal Botanic Society.

Personally, I think it is a pity that the great horticultural interests of the kingdom, amateur and professional, with the valuable and important trade they represent, should not be centred in one metropolitan society. But, if this be impossible, there is not a lover of gardens who would not, I believe, be glad to see the Royal Botanic rise to its great opportunities and advantages and to its old traditions. If I referred to dining-clubs, dances, bazaars, decorated carriages, and other similar entertainments," it was simply to express my own opinion that the road to prosperity and success does not lie that way.

In leaving me the choice between reprehensible ignorance and malice, Sir John Hutton is not a courteous critic. He can hardly fail to see that a hall, belonging to a society which will not require to use it more than thirty to forty days in the year, may be properly let for uses which were not suitable for a garden of several acres. Nor would he, in calmer moments, forget, when he says that the loan of a small area of one of the Royal parks for a few days for the exhibitions of this society would be a "grave abuse," that the Royal Botanic has a lease of an important part of one of the public parks. I need hardly add that I never doubted that the Royal Botanic would honourably discharge all its liabilities.

In conclusion, I know that, in claiming for the Royal Horticultural Society that since it left South Kensington it has discharged the duties devolving upon such a Society with fidelity to its objects, perseverance, judgment, and success, I can appeal for confirmation to lovers of gardens and gardening of every class throughout the kingdom. Were it not so, would the Fellows, who numbered 1,108 in 1888, have grown into 6,633 at the present date, and would there be 148 country societies affiliated to it?

I have the honour to be your obedient servant,
TREVOR LAWRENCE.

Royal Horticultural Society,
117, Victoria Street, S.W., March 17.

MINUTE OF COUNCIL, JANUARY 14, 1902.

The Secretary was instructed to convey the thanks of the Council to Lord Lister, and to inform him—

(i.) That, all arrangements for the present year having been already made and published, it was impossible to consider the matter as regarding the present twelve months; (ii.) that the Royal Horticultural Society was considering its Centenary, and until this matter had been settled, the Council would not think it wise to change the locality of our shows; and (iii.) to point out to his lordship that the Royal Horticultural Society, having met with such a measure of prosperity at Westminster, would require to be very fully convinced of the wisdom of such a change as that suggested by his lordship before they would embark on the undeniable risks which it would involve to the fortunes of the Royal Horticultural Society.

LINNEAN.

MARCH 19.—Professor S. H. Vines, F.R.S., President, in the Chair.

Mr. CLEMENT REID exhibited drawings by Mrs. Reid of fruits and seeds of British preglacial and interglacial plants (Thalamiflorae). In each case the specimens illustrated were the earliest known representatives of the species. Most of the plants are still living in Britain; but among the Thalamiflorae from the Cromer forest-bed occur seeds of Hypecoum, a genus specially characteristic of the Mediterranean region, and no longer found living nearer than southern France. The fossil seeds correspond closely with the living Hypecoum pendulum of southern France, and either belong to that species or to a closely-allied extinct form.

The seeds of all the species of Hypecoum are covered by a curious close mosaic of cubic crystals, apparently calcium oxalate, which fill square pits in the surface of the testa. Traces of these pits are still found on some of the fossil seeds.

Mr. G. CLARIDGE DRUCE read a paper "On Poa laxa and Poa strieta of our British Floras." For some years past doubts have been expressed by critical botanists as to the correct naming of these two plants, and to clear up these doubts the author has examined the material in various herbaria—of the fate Professor C. C. Babington, the British collection at the British Museum, the specimens gathered by George Don on Loch-na-gar, the Boswell-Syme set, and Smith's collection in the Society's possession. His conclusions are, that the plants named by him Poa alpina var. acutifolia, and P. laxa var. scotica, have been misunderstood and variously named; he therefore gives detailed descriptions of these two plants, with synonymy so far as British floras are concerned.

Next followed "The Botany of the Ceylon Patanas, Part II.," by Messrs. J. PARKIN and H. H. W. PEARSON, which was read by Mr. Parkin; the paper was illustrated by lantern slides.

The leaves of eighty plants, representing about two-fifths of the Dicotyledons of the Patanas, have been submitted to a close microscopical investigation, exact measurements made of several parts of their anatomy, and these, together with other details, arranged in the form of a table. Such data are compared for the plants as a whole, and afterwards for the "wet" and "dry" patana plants separately. The difference between the two sets of leaves as regards xerophytic characters and those serving as protections against excessive illumination, is very slight—a result hardly to be anticipated considering that the conditions of soil and rainfall vary greatly for the two kinds of patana.

The anatomy of erect and semi-erect leaves was investigated to see how far the structure corresponds with the habit.

Special points bearing on xerophytism in the leaf-anatomy of some of the plants were described, and a few other matters of anatomical and physiological interest were brought to notice.

ENQUIRY.

MOLES IN A ROCKERY.—Within the last twelve months my rock garden has been invaded by moles. I have caught one or two in traps, and tried to discourage them generally with paraffin, but without ridding myself of them; and they have recently become more active and energetic than ever, running over the whole area, which is fairly large. Can any reader give me assistance? I should be very glad to get rid of them, as they are doing considerable damage in uprooting and lifting everything, especially the newly-planted species. *S. M. B.*

MARKETS.

COVENT GARDEN, March 26.

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Anemones, per dozen bunches	1 3-	2 0
Azaleas, per doz. bunches	2 0-	4 0
— mollis, per bunch	1 0	—
Bouvardias, per dozen bunches	6 0-	8 0
Callas, per dozen	2 0-	3 0
Camellias, p. doz.	2 0-	3 0
Carnations, per bunch	1 0-	3 0
Chrysanthemums, per. bunch	1 0-	2 0
Daffodils, p. doz. bunches	1 0-	4 0
Eucharis	2 0-	3 0
Ferns, Asparagus, per bunch	1 0-	2 6
— French, per doz. bunches	0 4-	0 6
— Maidenhead, doz. bunches	4 0-	6 0
Freesias, per doz. bunches	2 0-	3 0
Gardenias, per box	4 0-	6 0
Iris, per bunch	1 0	—
Lilac, White	2 0-	4 0
Lilium album, per dozen blooms	1 6-	2 6
— auratum, per bunch	3 0-	4 0
— longiflorum, per bunch	2 0-	4 0
Lily of the Valley, p. doz. bunches	4 0-	9 0
Marguerites, yellow, doz bun.	2 0-	2 6
Mignonette, doz.	2 0-	3 0
Mimosa, per bunch	0 6-	1 0
Narcissus, dozen bunches	1 0-	3 0
Orchids: Cattleya, dozen blooms	12 0-	15 0
— Dendrobiums, per dozen	2 0-	3 0
— Odontoglossums, dozen	2 0-	4 0
Pelargoniums, zonal, dozen bunches	3 0-	6 0
— White	3 0-	6 0
Primroses, dozen bunches	0 6-	1 0
Prunus, p. dozen sprays	5 0	—
Roses, Mermet	3 0-	6 0
— various, per bunch	1 0-	4 0
— red, p. bunch	2 0-	3 0
— white, bunch	1 0-	2 0
— pink, bunch	2 0-	5 0
Smilax, per dozen trails	1 6-	2 6
Stocks, per dozen bunches	2 0-	4 0
Tulips, all colours, per buuch	0 6-	1 0
— Parma, per bunch	1 0-	2 0
Wallflowers, per dozen bunches	3 0-	3 6

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Acacias, per doz.	8 0-	12 0
Adiantums, doz.	4 0-	8 0
Aralias, per doz.	4 0-	8 0
Arbor Vitæs, doz.	9 0-	18 0
Aspidistras, doz.	18 0-	36 0
Aucubas, per doz.	4 0-	8 0
Azaleas, each	2 0-	4 0
Begonia Gloire de Lorraine	6 0-	12 0
Callas, per dozen	4 0-	6 0
Cinerarias, p. dz.	4 0-	8 0
Crocus, per box	1 0-	1 6
Crotons, per doz.	12 0-	24 0
Cyclamens, p. doz.	6 0-	18 0
Cytisus, per dozen	6 0-	9 0
Daffodils, p. doz.	4 0-	6 0
Dracænas, var., dz.	12 0-	48 0
Ericas, per dozen	8 0-	18 0
Euonymus, vars., per dozen	4 0-	6 0
Ferns in variety, per dozen	4 0-	30 0
Ficus elastica, per dozen	9 0-	24 0
Hydrangeas, per dozen	12 0-	15 0
Herbaceous and Perennial Plants in variety, box	1 0-	2 0
Hyacinths, p. doz.	8 0-	10 0
Lilium longiflorium, per doz	6 0-	21 0
Lilac, pots, each	2 0-	3 6
Lycopodiums, pr. dozen	4 0-	5 0
Marguerites, doz.	6 0-	12 0
Mignonette, doz.	6 0-	8 0
Orange-trees, each	3 0-	7 6
Palms, various, each	3 0-	20 0
Pelargoniums, Scarlet	4 0-	6 0
Pteris tremula, p. dozen	4 0-	6 0
— Wimsetti, doz.	4 0-	8 0
— major, per dnz.	4 0-	8 0
Solanums, p. doz.	6 0-	8 0
Spiræas, per doz.	4 0-	8 0
Tulips, red, p. box	1 0-	2 0
— white, p. box	1 0-	2 0
— yellow, p. box	1 0-	2 0
— all colours	1 0-	2 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen	2 0-	2 6
— Jerusalem, p. sieve	0 9-	1 0
Asparagus, sprue, per bundle	0 9	—
— Paris Green	6 0-	7 0
— English, per bundle	7 6-	8 0
Beans, dwarf, lb.	0 10	—
— broad, flat	0 6	—
— Channel Is. lb.	0 10	—
— Madeira, bkt.	1 6-	2 0
Beetroots, bushel	1 0-	1 3
Brussels Sprouts, per sieve	0 6-	1 0
Cabbages, per bag	1 0-	1 6
Carrots, doz. bun.	1 6-	2 0
— bag (washed)	1 6-	2 6
Cauliflowers, per dozen	1 6-	2 6
Celeriac, per doz.	2 6	—
Celery, per dozen bundles	4 0-	9 0
Chicory, per lb.	0 2½	—
Cress, per dozen punnets	1 3	—
Cucumbers, doz.	2 6-	4 0
Endive, per doz.	1 6-	2 0
Garlic, per lb.	0 4	—
Horseradish, foreign, p. bunch	1 3-	1 6
Leeks, per dozen bunches	1 0	—
Lettuces, Cabbage, per dozen	0 8-	1 0
Lettuce, Cos, doz.	4 0	—
Mint, dozen bun.	3 0-	4 0
Mushrooms, house, per lb.	0 10	—
Onions, per bag	3 6	—
— English, cwt.	4 6-	5 0
— foreign, case	6 0	—
— picklers, per sieve	2 6-	3 0
Parsley, per doz. bunches	1 0-	1 6
— sieve	0 9-	1 0
Parsnips, per bag	1 0-	1 6
Peas, in flats	5 0-	6 0
Potatos, per ton	80 0-	115 0
— New Teneriffe, per cwt.	10 0-	14 0
— New, Kidney, Frame, p. lb.	0 5	—
Radishes, p. doz.	0 6-	1 0
Rhubarb, Yorks., — outdoor	0 8-	9 10½
per doz.	1 0-	2 6
Salad, small, punnets, per doz.	1 3	—
Seakale, per doz. punnets	12 0-	14 0
— natural, doz. punnets	10 0-	12 0
Shallots, per doz.	0 2	—
Spinach, per bushel	2 6-	3 6
Tomatos, Canary, deeps	1 9-	4 6
— Eng., new, lb.	1 6	—
Turnips, p. dozen	1 6-	2 0
— bags	1 0-	2 0
— new, bunch	0 6-	0 8
Watercress, per dozen bunches	0 6	—

POTATOS.

Various samples, 80*s.* to 90*s.* per ton; Dunbars, red soil, 105*s.* to 115*s.* Seed Potatos in variety, prices on application. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per bush.	4 0-	6 0
— Californian, cases	10 0-	14 0
— American, per barrel	14 0-	18 0
— Australian, per case	12 0-	16 0
Bananas, per bunch	8 0-	12 0
— loose, dozen	1 0-	1 6
Chestnuts, Italian, per bag	10 0-	15 0
Cobnuts, per lb.	0 3	—
Grapes, Almeria, per doz. lb.	4 0-	6 0
— Colman, A., per lb.	2 6-	3 6
— — B., per lo.	1 6-	2 0
Lemons, per case	9 0-	12 6
Lychees, packet	1 0	—
Oranges, case	9 0-	14 0
— Bitter	7 0-	8 0
— Tangierines	3 0-	4 0
Pines, each	2 0-	4 0
Strawberries, A., per lb.	5 0-	7 0
— B., per lb.	2 0-	3 0

REMARKS.—Natural Seakale, 10*s.* to 12*s.* p. doz. punnets. Of Cape fruits, Pears are 3*s.* to 5*s.*; Plums, 4*s.* to 6*s.*; and Grapes, 6*s.* to 12*s.* per case; Grape-fruits, 15*s.* per case; St. Malo Lettuce, 2*s.* 6*d.* per basket of seventy-two heads. Savoys are over. Egyptian Onions are now coming in. Canary Tomatos vary much in sample.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending March 21, 1903, and for the corresponding period of 1902, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1902.	1903.	Difference.
	s. d.	s. d.	s. d.
Wheat	27 1	25 1	— 2 0
Barley	26 4	22 9	— 3 7
Oats	20 6	16 10	— 3 8

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period March 15 to March 21, 1903. Height above sea-level 24 feet.

MARCH 15 TO MARCH 21, 1903.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR. At 9 A.M. Dry Bulb.	Wet Bulb.	Highest.	Lowest.	RAINFALL.	TEMPERATURE OF SOIL at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	LOWEST TEMPERATURE ON GRASS.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 15	S.S.W.	44·1	41·1	51·4	30·3	...	42·4	44·1	45·3	19·8
MON. 16	S.S.W.	45·9	41·5	49·9	35·4	...	42·5	44·1	45·3	21·7
TUES. 17	S.W.	47·3	43·3	51·4	37·2	0·15	42·5	44·1	45·3	23·6
WED. 18	W.	42·9	39·9	51·4	42·5	...	44·4	44·2	45·3	40·0
THU. 19	W.S.W.	50·7	47·4	53·2	42·5	0·06	44·5	44·7	45·3	35·2
FRI. 20	W.S.W.	51·9	47·0	57·3	49·6	...	45·9	45·0	45·5	44·8
SAT. 21	S.S.W.	49·2	41·2	56·1	47·0	...	46·7	45·6	45·5	44·0
						Tot				
MEANS	...	47·4	43·5	53·0	40·6	0·21	44·1	44·5	45·4	32·6

Remarks.—The weather has been bright and windy, with showers on two days.

THE WEATHER IN WEST HERTS.

THE ninth unseasonably warm week in succession and the warmest of the series. The second week in February was, however, nearly as warm. On the warmest day the temperature in the thermometer screen rose to 60°, which, although not exceptionally high for March, is the highest reading as yet this year. On the warmest night the thermometer exposed on the lawn never fell lower than 45°. The temperature of the ground has risen during the week, and is now 4° warmer at two feet deep, and 5° warmer at 1 foot deep, than is seasonable. Rain fell on only one day, when nearly three-quarters of an inch was deposited. We have to go back to January 4, in order to find a day as wet. Moderate quantities of rainwater came through both percolation gauges until this wet day, when on the following morning 1½ gall. was the measurement from the bare soil gauge, and nearly the same quantity from that covered with short grass. This will show how saturated at a short distance below the surface the soil must

previously have been. The sun shone on an average for four hours a day, which is rather in excess of the mean record for March. The wind remained high throughout the week, the mean rate of movement being eleven miles an hour, while the direction was almost constantly some point between south and west. The atmosphere was, as a rule, very dry. Anemone ranunculoides came first into flower in my garden on the 22nd which is nine days in advance of last year, and as much as three weeks earlier than in 1901. *E. M.*, *Berkhamsted*, March 24, 1903.

ANSWERS TO CORRESPONDENTS.

Black and White Grapes in same Vinery: *J. T.* If early Grapes are required, you may plant Black Hamburgh, Black Frontignan, or the improvement on this variety, Anger's Frontignau; and Black Alicante, which is also a good keeper. White vars.: Ascot Frontignan, Foster's Seedling, Buckland Sweetwater, Dr. Hogg, Duchess of Buccleuch, Duke of Buccleuch. If late Grapes are wanted, please write again. The quantity of hot-water-pipes provided would suffice for late ripening varieties.

Boilers Encrusted: *G. F. H.* There is an "Ante-Incrustator" sold for the purpose by the horticultural sundriesmen. Scan our advertisement columns.

Books: *E. K. D. The Book of Orchids*, by W. H. White, is published by John Lane, Bodley Head, London. Price 2*s.* 6*d.*

Cement Tanks and Water-Lilies: *C. E.* The newness of the cement lining may be responsible for the injury to the leaves. Change the water frequently, and the evil will abate.

Correction: *H. S.* The plant named in our last issue was not Dodecatheon, but Erythronium, dens canis variety.

Cucumber Plant: *F. W. M.* There are neither insects nor fungus to account for the appearance. Can you not afford us fuller particulars as to treatment?

Daffodils: *H. F.* We do not think they are hybrids, but varieties of the common Daffodil.

Double Richardia or Calla: *W. A. B.* We get such specimens every week at this season of the year. See reply to J. G. & Sons, and J. B., in our last issue.

Flora of Spain: *X. Y. Z.* Apart from the classical *Flora* of Willkomm and Lange, there appears to be no complete flora in a handy form, but the following works may be mentioned:—1, *La Puerta. Botánica descriptiva y determinacion de las plantas indígenas y cultivadas en España de uso medicinal, alimenticio é industrial.* Ed. 2., Madrid, 1891, 8vo, pp. 689, numerous figures. 1, Philippe, X.; *Flore des Pyrénées.* Bagnères-de-Bigorre, 1859; 2 vols., 8vo; vol. i., pp. 605; vol. ii., pp. 500. 3, Costa y Cuxart, A. C.; *Introduccion á la Flora de Cataluña y catálogo razonado de las plantas observadas en esta region.* Barcelona, 1864; sm. 8vo, pp. 343. 4, Cutanda, V.; *Flora compendiada de Madrid y su Provincia, ó descripcion sucinta de las plantas vasculares que espontáneamente crecen en este territorio.* Madrid, 1861; 8vo, 759 pp. In addition to the above, there are works on the floras of Aragon, Castille, Galicia, and Gibraltar.

Fungus in Turf and Crocks: *G. F.* Dissolve 1 oz. of carbolic acid in 25 gallons of water, and thoroughly soak the soil in which the plants are growing. This will destroy the fungus without injuring the plants. About three waterings on alternate days will be sufficient. *G. M.*

Gardener's Situation in the U.S.A.: *J. O. S.* You should advertise in this or American gardening papers having a circulation in the chief towns of the older settled States; or having chosen a city or town, such as New York, Philadelphia, Chicago, New Orleans, Baltimore, Boston, Jersey City, Brooklyn, or Buffalo, journey thither, and make visits to some of the larger nurseries. If you do not meet with a situation just to your liking forthwith, go into a nursery till one turns up.

Herbaceous Perennials in a Border: *Stoughton.* Mix up your plants in such a manner as to have no large area destitute of flowers during summer and autumn. Plant them in colonies of six to twenty, according to the size to which they grow upwards and spread laterally, placing the taller (but not all), towards the back, or part of the border furthest from the beholder, and graduate them down to the dwarfer plants at the front of the same. Endeavour to obtain pleasing contrasts or harmonies in the form and tints of the foliage, as well as in those of the flowers. Do not plant delicate, weak growers in close proximity to those of strong growth, or the former will be smothered out of existence in a year or two. If red and yellow flowers must be planted in close proximity, insert the complementary colour, blue, somewhere close by, and in larger quantity than either of the other singly. Yellow-coloured flowers are usually over abundant in the autumn, but the glare may be toned down by the use of blue and white flowers.

Hippeastrum (Amaryllis) Bulbs: *T. T.* When potted, the decayed covering of the roots, crown, and skin around the bulbs was not cleaned away, and consequently a fungoid growth appears, which is detrimental. When potted, they should have been thoroughly cleaned, potted into rather small pots, and placed in a warm house; when root-action commenced, the plants should have been potted-on. There is no evidence of "mite."

Lawn-grass: *J. N. & Co.* Appearances suggest that the fungus is only a secondary cause of the withering of the grass. Is the drainage good? as the slightest suspicion of sourness or lack of air in the soil would favour the growth of the fungus. Soak the ground three or four times, at intervals of four days, with a solution consisting of 1 lb. of sulphate of iron, dissolved in 2 galls. of water. *G. M.*

Lily, &c.: *Southwick.* The leaves are affected with a fungus, probably a Botrytis. Better burn the bulbs, as it may spread. The Orchid is Bolbophyllum auricomum.

Lime-tree: *E. D.* The tree being a large one, you should be satisfied if the shoots make an inch or two of growth annually. It may not recover from the removal for another year, or longer. Weak manure-water would assist the tree to make growth, if applied in the summer, as would also copious syringings with a hose after hot days.

Modern Books on Vegetable Cultivation: *J. C. E. The Book of Vegetables*, by G. Wythes. Published by John Lane, The Bodley Head, London. Price 2*s.* 6*d.* A larger work is *The Culture of Vegetables and Flowers*, by Sutton & Sons, Reading. Seventh edition. Published by Simpkin, Marshall, Hamilton, Kent & Co., Limited.

Mushroom Beds in a Rhubarb Forcing-House: *C. H.* It really does not matter in what form the beds are made, but for convenience the sloping bank or the ridge are the better ones. If a ridge, it should be 4 to 5 feet wide at the base and have a perpendicular height of 3 feet, and a bank may be made of a width of 8 to 10 feet, and a thickness of 2 feet or 2½ feet at the back, and 1½ feet at the front. Some Mushroom growers employ flat beds, but we think the slope is more readily cleared of its covering of hay or litter, if these be used. Place a plunging thermometer in each bed in turn, or use a test stick, and spawn the beds when the heat has declined to blood heat, Fahrenheit. If the heat declines rapidly after soiling the bed with warm loam, cover the bed with mats and litter. The heat of the house should be maintained steadily at 60°, and the air kept moist by damping down. Keep a sharp look-out for woodlice, and trap all you can. It is a good practice to prepare a quantity of fresh materials for beds within the house, as by so doing the warmth can be kept up to the right degree without the use of fireheat, excepting in hard weather. If the steam escaping from the fermenting stable dung is very abundant, it must be allowed to escape into the open air.

Names of Fruits: *Percy Tavener.* Apple Dutch Mignonne (syn.) Reinette de Caux.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*F. B.* Sutherlandia frutescens.—*C. B. L. S.* Megasea (Saxifraga) crassifolia var.—*C. H. B.* Acacia.—*J. H., Aberdeen.* Cœlogyne lactea.—*Vigo.* 1, Lycaste Skinneri; 2, L. plana; 3, L. lasioglossa; 4, Bulbophyllum auricomum; 5, Cirrhopetalum cornutum; 6, Oncidium obryzatum.—*G. H. P.* 1, Bifrenaria Harrisoniæ; 2, Begonia argyrostigma; 3, B. incarnata metallica; 4, Asplenium marinum; 5, Adiantum trapeziforme var. Santa Catherinæ; 6, Dracæna nigrescens; 7, Calathea zebrina, often called Maranta.—*J. A.* A, Acocanthera spectabile, called Toxicophlœa in gardens; B, send in flower; C, Panicum plicatum; D, Cyperus longus; E, Nepeta Glechoma variegata, variegated Ground Ivy; F, Rose, not recognised.—*W. H.* 1, Fuchsia procumbens; 2, Scopolia carniolica; 3, one of the garden forms of Begonia incarnata; 4, probably Ochna multiflora; 5, Polystichum angulare proliferum; 6, could not be called Parsley Fern; it is a moss, Selaginella Kraussiana Browni.—*W. Badman.* Cattleya Schroderæ.—*S. H. C.* Narcissus incomparabilis, double variety "Butter and Eggs."—*S. B. & Son.* Acacia obliqua.

Orange with Fungus: *A. B. S.* The fungus present in the Orange is Macrosporium commune, a species often met with in the interior of ripe fruit. The entrance is effected through the style when the plant is in flower.

Sulphide of Potassium (Liver of Sulphur): *H. Thompson.* We did not think it necessary to state that this substance would cause the discoloration of lead paint, it being a matter of common knowledge that sulphur in any of its forms will do this. Plants when being syringed should be removed to the open air or a shed.

Tomato and Cucumber: *W. Chambers.* The Tomato plant exhibits signs of fungus, probably the sleepy disease; but it is in too early a stage to say with certainty which it is. If it be this species, you must destroy the plants by fire, and choose another house in which to grow the plants. We are quite unable to tell what insect made the hole in the Cucumber-stem.

Tulips: *W. G. G.* The bulbs are attacked by Botrytis. Remove all that are diseased, and place quick-lime in the place the bulbs occupied. The soil should be thoroughly sterilised with gas-lime after the Tulips are removed.

Walnut: *E. G. R.* We fear there is not much chance of saving the tree. We should cut away all the decayed portion, and fill the hole with cement. We should certainly not bury the still sound portion, or that will rot too. The tree would require support by props to prevent risk of breaking off. If the bark is still sound, it may in course of years cover the cement.

Woodlice: *Woods.* Throw boiling water into their haunts after dark, or fill flower-pots or drain-pipes with damp hay, emptying this into the garden furnace by daylight, at which time the insects are mostly in hiding. The number of these pests may be materially reduced by following either of these courses for a few weeks, and clearing away all decaying materials.

Communications Received.—A. E. T. R.—S. W. F.—G. T. D.—M. F.—Old Bird—R. B.—H. W.—J. R.—P. S.—J. C.—J. G. V.—H. J. V.—E. B.—D. R. W.—W. R.—F. W. B.—Sec., Board of Agriculture—S. A. S. W. B. H.—P. W. T.—Sander et Fils—Prof. Wittmack—Maull & Fox—G. H.—Earl of Warwick—G. W.—Sir T. L.—Prof. Reynolds Green—W. M. (letter forwarded)—Dr. Morris, Barbados—E. C.—J. P. Robertson—R. P. B.—S. A.—H. W. W.—Sec. Roy. Botanic Soc. (with thanks)—G. Jackman—W. W. P.—W. H.—A. D.—H. M.—W. K.—Ignoramus—A. A. N.—W. J. S. G.—J. Simcoe—P. Weathers (too late for present issue)—G. E.—W. A. C.—M. F.

CATALOGUES RECEIVED.

Hobbies, Limited, 12, Paternoster Square, London, E.C.—Catalogue of Photographic Appliances.

FOREIGN.

François Gerbeaux, 1, Rue du Ruisseau, Nancy, France—Tender and Hardy Plants.

Carl Sprenger, Naples, Italy—New Plants.

Androsace sarmentosa.

THE

Gardeners' Chronicle

No. 849.—SATURDAY, APRIL 4, 1903.

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VIEW IN THE GROUNDS, BELVOIR CASTLE.

[See Supplementary Illustration.]

In some recent issues of the *Gardeners' Chronicle* there have appeared as Supplements striking views in the pleasure grounds surrounding this lordly residence of the Dukes of Rutland, which indicate the kind of flower-gardening carried out there, and is in excellent keeping with the contour of the land, and the surrounding woods and glades. We give this week a further account of other parts of the garden, furnished by Mr. W. H. Divers, the head gardener at Belvoir.

"The view shows the slope of the hill below the castle plateau, one of the rockeries being in the foreground, with a tree of Ailanthus glandulosa to the left-hand, close to which grows a white-flowered Thorn, affording a pretty effect when the expanding leaves of the Ailanthus show their pink tips against the flowers of the Thorn—two events which do sometimes coincide. Beneath this is a fine clump of Arundinaria falcata, 11 feet high and 17 feet across, which was planted out of a flower-pot in 1882, when this portion of the garden had been enclosed two years. Further back, a tree of Acer polymorphum atropurpureum, 20 feet 9 inches high, and 20 feet in width, said to be the finest plant in the kingdom, affords a grand mass of colour in early spring and late autumn. The very dark mass observed near to it is a plant of Prunus Pissardi, and adjacent is a clump of Camellias, 8½ feet high, which flower well every year. The varieties include alba plena, Lady Hume's Blush, corallina, and others; a plant of Rhododendron Falconeri, 12 feet high, is near this spot, and also flowers freely. But space forbids the mention of more than a few of the plants found in this garden: eighteen species of Eucalyptus have been tried, but only E. coccifera and E. cordata have proved hardy; Rhododendron Thomsoni, a Sikkim species, flowers well, and is very distinct, having dark blood-red flowers, and glaucous foliage; Eucrypha pinnatifolia is a large plant, and very showy when in bloom, also when its foliage decays; tall plants of Azara microphylla, with the fragrance of the Vanilla, that when in flower scent the whole garden; Phyllostachys viridi-glaucescens, planted about 1892, is now 11 feet in height—a fine plant; and the best of the hardy Bamboos here, viz., Arundinaria japonica (Bambusa Metake), is represented by several large specimens, the finest being 10 feet 7 inches high, and 21 feet across. Daphne indica survives the winter and produces flowers; and a plant of Salix herbacea brought from Norway by the late Mr. W. Ingram seems quite at home. The lower portions of this garden, not shown in the picture, contain large masses of choice Rhododendrons, Azaleas, also more rockeries, the shrubs affording a fine lot of bloom to succeed the spring flowers in the beds. This garden is much admired by all who see it; in addition to its novel form and admirable situation, its beauty is increased by the natural manner in which the shrubs and plants are dotted about on the grass, and the variety of interesting nooks which come suddenly into view on close inspection. The view from the top of the bank on a clear day is magnificent, the whole of the garden being visible, and beyond the woods, parts of the extensive lake come into view, a grassy hillside, well wooded, behind; the village of Woolsthorpe at the left, in the valley; and Barrowby Hill, Syston Hall, and Belton Park in the far distance.

"The upper walk, called the Duke's Walk, continues along the side of the hill to Frog Hollow, a large bog-garden, where many interesting flowers are grown, and returns on the other side of the hill, a distance of 2¼ miles. Large numbers of Conifers, Rhododendrons, and other shrubs are distributed by the sides, two of which deserve especial mention, viz., Rhododendron campanulatum, 17½ feet high, and Taxodium sempervirens, the largest plant of which is 71 feet high and 10 feet round its stem.

"The Duke kindly allows the public to walk through the flower gardens and about the woodland walks, drives, &c., daily. Many visitors come from the large manufacturing towns to enjoy the beauties of Nature. The prettiest sight is when the spring flowers are in bloom in the flower gardens, generally from April 20 to May 20; these are followed by many other things, until the end of September.

"From below the Statuary Garden, a broad gravel walk leads for a quarter of a mile through an avenue of trees to one of the turreted gateways of the kitchen-garden. This covers 14 acres, 6½ acres of which are enclosed within the walls. It was formed in 1816 by Thomas Lack, who was head gardener at that time, and whose name deserves to be recorded here for the excellent manner in which the work was carried out; fine broad gravel walks traverse it in all directions, and allow a carriage and pair to drive all round. A series of smaller garden walks affords the garden men access to the borders, and thus keep the main walks always clean and tidy; the walls and gateways are surmounted by a series of stone turrets, which take away the stiff appearance of the ordinary kitchen-garden. The upper portion of this garden (about 1 acre), which is partitioned off by a cross wall, and contains a large collection of herbaceous plants (fig. 86), among which many rare and interesting things are to be found; five large vineries and a Peach-house occupy the south wall. The Vines are very old, but they still give good crops annually; some of the Black Hamburgh Vines were planted when the garden was made.

"One of the finest views of the Castle is obtained from this point. The walls average 12 ft. in height, and are well covered on both sides with fruit-trees, which annually bear good crops, and contain many specimens of good training. It may be mentioned that the same man, James Stubley, has had these Vines under his charge for a period of twenty-six years; many who have assisted him, and who now occupy responsible positions elsewhere, will be pleased to see his name mentioned here. The situation of the kitchen garden is well sheltered on the west and south-west, but owing to the soil being a stiff clay, it is very cold and, consequently, late. Some fine Apples are grown, and the collection includes 153 varieties, some being very large standard trees, but the best fruits are obtained from younger specimens.

"Pears succeed remarkably on this cool, moist soil, and the collection includes 120 varieties, the best of which are Jargonelle, Williams' Bon Chrétien, Dunmore, Beurré d'Amanlis, Welbeck Bergamot, Fondante d'Automne, Beurré Hardy, Beurré Superfin, Marguerite Marillat, Thompson's, Delices de Hardenpont, Doyenné du Comice, Marie Louise, Beurré du Buisson, Seckle, Huyshe's Victoria, Winter Nelis, Hacon's Incomparable, Easter Beurré, Doyenné d'Alençon, Le Lectier, Passe Crassane, Nouvelle Fulvie, Knight's Monarch, Josephine de Malines, Olivier de Serres, Ne plus Meuris, and Bergamot d'Esperen.

"Apricots generally bear well, and are not subject to loss of branches. The largest tree, probably, in the kingdom grows on the stable wall, its roots receiving no attention whatever, as they are below a pavement of granite setts; the variety is the Roman, and it was planted in 1857, and is 25½ feet high by 24½ feet wide. Peaches also succeed on south walls.

"The plant-houses are situated outside, on the east side of the kitchen garden, and were designed many years ago chiefly for preserving bedding plants, of which a very large number is required. A general collection of plants is grown, chiefly in a small state for decorating the rooms in the Castle. *W. H. Divers.*"

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM × HOLBROOK GASKELL (LEEANUM WOOLTON WOOD VAR. ♂ × CHARLESWORTHI).

A very handsome hybrid raised by Mr. H. C. Corlett, gr. to Holbrook Gaskell, Esq., Woolton Wood, Liverpool. The record is: "Fertilised November 2, 1897; sown August 14, 1898; flowered Nov. 1, 1902." The flower approaches nearest to C. Charlesworthi, and resembles a very large form of that species, with a most beautiful dorsal sepal over 3¾ inches wide, and very finely displayed. The dorsal sepal is pure white with a small emerald-green base, from which ascend some light purple shaded lines, gradually getting paler towards the centre, where they merge into the white ground colour. There is a light rose-purple band up the middle. The lower sepals are greenish with white margins; the petals and lip are greenish-yellow tinged with purple. Staminode white, with a yellowish boss in the centre. *J. O'B.*

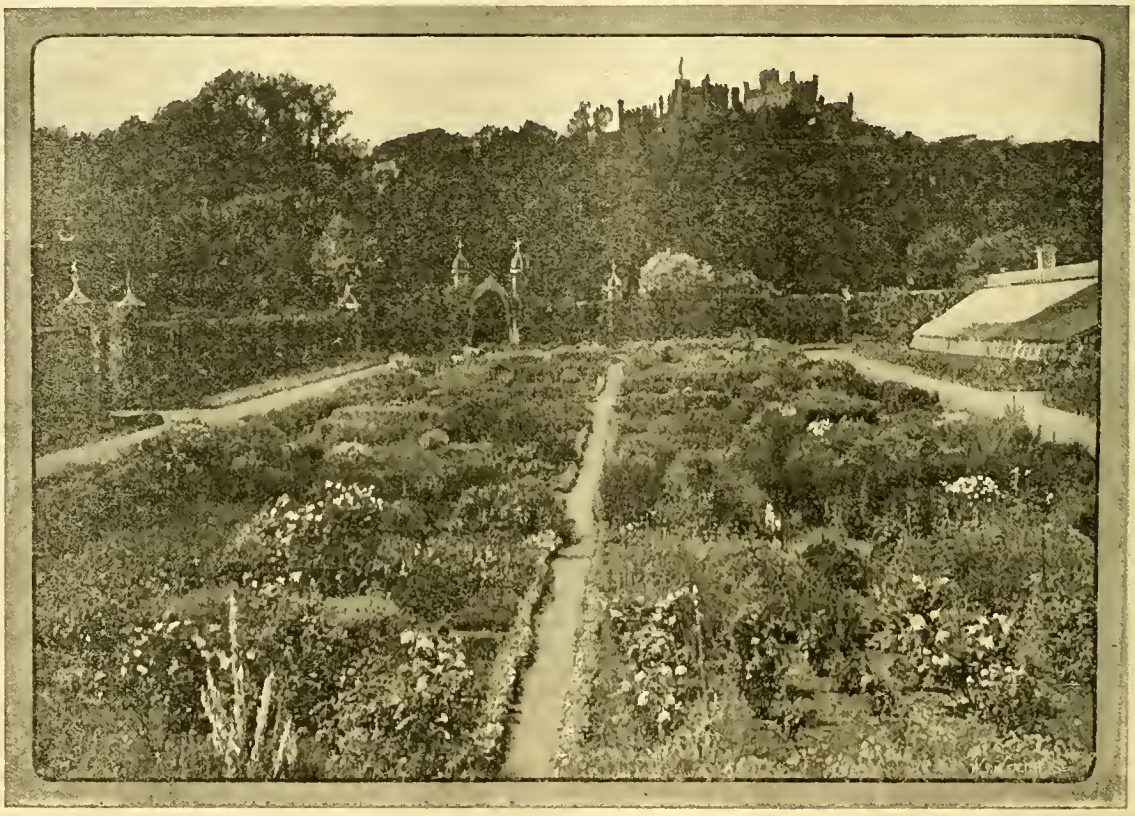

Fig. 86.—The herbaceous-perennial garden, Belvoir Castle. (see p. 209.)

SOUTH AFRICA.

(*Continued from p.* 195.)

From Johannesburg I moved to Pretoria, saw Mr. Burton, the editor of the *Agricultural Journal*, and supplied him with some matter for his next issue. I met here the correspondent of the *Morning Post*, who invited me to his office, and when there asked me to supply an article on tree planting, as his office faces the square, which soon will be laid out as a garden. At the present time a big ugly Dutch Reformed Church occupies the centre; the Government is said to have bought it for £100,000, and will soon remove it. I suggested that the entire space should be laid down in grass, and that around the garden should be planted a strong belt of a small-leaved Eucalyptus (E. Lehmanni), as a dust break (dust all over South Africa is a great trouble, and when a dust-storm prevails, you feel it in your mouth when biting). Inside the belt of trees should be made a border of flowering shrubs and herbaceous plants; but grass should be the great feature, with a few shade trees for those who enjoy the garden at midday. I went through most of the Government Departments, made up from Cape Town and London, Lord Milner having got together as smart a lot of men as he could command.

In the Lands Department I was invited to go and see the settlers at Warm Baths (named from a hot spring), which is in charge of a New South Wales man. The arrangements on these settlements are all temporary; the men are allowed 50 acres each, and as much more as they can plough. The Government find the rations, seeds, implements, and draft oxen or horses; in return, the Government claim half the produce. This is a common custom in South Africa, and is called the half system minus the rations, &c. A similar custom also prevails amongst the French on the Pyrennees. One of the Warm Baths settlers drove me to his tent some distance out, and I found they were a party of three warriors who had formed friendship on the field, and had cast their lot together in this experimental farming. One had been a stockbroker, the other an Anglo-Indian, the third did not say what he had been. Entering into conversation I found none of them had any knowledge of the handling of land. One of them was reading Wallace's book, printed at the expense of the Cape Government, and for which 12s. 6*d*. had been paid. We talked over matters, and I gave them such information as I possessed, recommending them books; and as they had started a rather primitive garden, I offered them a few hints on its management, and promised them some seeds from London. The following day the manager drove me to some other small farms, some better, some worse, but all suffering from the drought which prevails.

Mr. Samuel Marks has a fruit farm a short railway-ride out of Pretoria. It did not look very gay, showing the neglect of three years, and the want of manure. I was reminded of a similar case. A gardener once called upon me to see if I could find him a place; making the usual enquiries, he told me that he was running a vinery for old Mr. Solomon, Covent Garden (not the noble Lewis Solomon, but his father). "Why do you want to leave?" I enquired. "Because Mr. Soloman wants early Grapes, and will not allow me coal sufficient to keep up the temperature in winter." So Mr. Marks starves his fruit-trees, and yet expects fine fruit. The first expense he did not begrudge, but the running of the show he cannot rise to.

From Pretoria I made for the Orange River Colony, stopping at Kroonstad—everything was burnt up, very few flowers about, but still the same bulb in seed which I had found in the meadow at the bottom of Talana Hill, as also in all places I visited from Dundee. The only good thing I found here was the hotel, and it was a good one—bed good, food good, qualities not often found in the towns of South Africa. Before this country becomes a tourist country, the hotel accommodation, and the food, cooking, and attendance, will have to be improved. When fresh meat is the rule, things will be better, no doubt; but the

frozen meat should be far superior to what is at present put on the table. The other day a piece of steak was put before me; the knife could not penetrate it, so I tried with two knives, as I have read that steel sharpens steel. Then I tried the sharpened knife, and managed to saw off a small piece, put it in my mouth, and chewed at it over the regulation thirty-two chews without making any impression, and had to give it up as a bad job. I think I may say this was the first time I had to confess I had failed to eat what was placed before me. I hold a theory: if a man wants to travel, he must not be particular on the score of food, or he had better stay at home; and if in London, go to Simpson's for mutton [he can no longer do this. Ed.], and the City for a beefsteak.

My next resting-place was Bloemfontein, a pretty little country town, with rather more pretensions to a capital than Pretoria, but that is not saying much. There are three buildings in Pretoria, the Parliament House and the Law Courts, really handsome buildings; and the Standard Bank, a replica of the pumping-station on the Embankment, near Victoria Station. At Bloemfontein the Parliament House is well designed, and surrounded by Doric columns and a garden. This is the only building in the town of any pretension. Now I remember, the town is passable. The old Parliament House, now the Law Courts, is a fine building in the midst of a garden. Things will soon be changed, I suppose. The Agricultural Department is in an old dwelling-house; here I found Mr. Smith head of the Department, but he concerns himself mostly with stock. He is a Cumberland man, and was in the Dairy interest under the old Republic. We had a long talk on tree-planting, in which he took a great interest; and Lord Charles Thyne came in and joined us. As usual, I was asked what trees were best to plant? and my answer was, what you can get to grow on your waste lands. I then narrated my visit to Salt Lake City, where I was invited to meet a forestry committee, none of whom seemed to have much if any knowledge of tree-planting; and I put the question, "What trees will grow in your canyons?" One said, Black Walnut. Then I said, "You cannot plant a tree that will make you a better return, as the Black Walnut of Canada and the States is nearly all cut down." Only one small forest remains in Virginia. Mr. Smith said they had places where it would grow, and at once sent to New York for three bushels of seed. While in Bloemfontein he took me to a small orchard a few miles out. The military at Bloemfontein occupy some heights close to the town. On this little plateau I found a Stapelia, which I posted to Mr. Chalwin, Cape Town, and it is a species he does not know. I hope it is new. *Peter Barr, Cape Colony.*

IRIS PURPUREO-PERSICA.

Iris purpureo-persica is, as its name implies, a cross between the purple-red Iris persica purpurea and the old Iris persica, and is interesting on account of its being one of the first crosses raised in the Juno group of Irises. A hybrid, raised at the same time between Iris sindjarensis and Iris persica was illustrated and described in these columns, vol. xxix., p. 105. The variety now illustrated (fig. 87) is a very early-flowering, robust, absolutely hardy garden Iris, of remarkable richness of colouring, and possessing much fragrance. It has such a free-growing constitution that a bulb planted by Sir M. Foster in his Shelford garden a few years ago, has now developed into a big clump, ordinary Iris persica and its allies invariably dying out. This plant has lately been shown by Miss Willmott under the name of Iris "purp.-pers." The Royal Horticultural Society's Floral Committee objected to the latter name, and it now has been definitely altered to Iris purpureo-persica. The colour of the flowers is reddish-purple, deepening on the falls into blackish-maroon, with a conspicuous bright orange-coloured central spot, and they measure about 4 inches in diameter. It was raised in Messrs. Van Tubergen's Nurseries. *John Hoog, Haarlem, Holland.*

THE ROSARY.

ROSA GIGANTEA.

This very beautiful Rose has not as yet, I believe, flowered elsewhere in Great Britain. [It has flowered under glass with Mr. F. Cant. Ed.] Many people confuse this Rose with the much smaller "Himalaica Briar," but the true Rosa gigantea, which grows at an altitude of 6,000 feet among the Shan Hills, India, is a Rose once seen in flower will not soon be forgotten—at least, so I have been told; and last year I had the very great pleasure of hearing from a lady's lips a true description of this gigantic climbing Rose. The lady in question has been a great traveller, having been nearly all over the globe, and her keen knowledge and lucid description of this Rose, and other rare and beautiful plants, added to my keen ambition to flower the Rose in question.

I have a twelve-year-old cutting growing in a mixed house of plants, which adds to my non-success in flowering R. gigantea, as in our moist climate, unless having a house to itself, this Rose cannot be kept cool or dry enough—at least, this is my impression, and I regret not having planted this Rose outside, for I believe it would flower much quicker outside than under glass. I see it is only mentioned as a stock for grafting other Roses on in that grand book *A Traveller's Notes*, by J. H. Veitch, as seen by him when visiting the gardens at Gwalior, but no mention is made as to this Rose when in flower; also, if I remember right, mention was made in the *Gardeners' Chronicle* some years back of this Rose having flowered in the south of France. At any rate, I have not yet found any gardener

Fig. 87.—Iris purpureo-persica.

or Rose-grower who has seen this Rose in flower, and only a few have tried to grow it; many say it will not grow with them. I lost three before I could succeed, but as regards growing once it does start, it never seems to stop growing all the year through; but as to flowering so far, I have still to wait, yet I am told it is like true love, worth waiting for. I hope so; and if any of my fellow readers of our ever-interesting *Gardeners' Chronicle* can add to my great interest in the above Rose, I shall be truly grateful for such Mr. J. H. Veitch mentions that Maréchal Niel and other Roses he saw growing at Gwalior were grafted on Rosa gigantea. I should say it was just the Rose to work on to do away with canker, also for such delicate Roses as Cloth of Gold, &c., for on its own roots Rosa gigantea is the strongest and fastest growing Rose I ever saw; and if we could get it to flower half as well as it does in its native country, it would be a sight worth seeing, to say nothing as to being the foundation of many other good things to come from the hybridisers' hands. *W. C. Leach, Albury Park Gardens, Guildford.* [It will be remembered that since this letter was written, Mr. Leach has succeeded in flowering this noble Rose. See *Gard. Chron.*, March 21, 1903, p. 188.]

CULTURAL MEMORANDA.

MANURING SEAKALE.

Having for several years treated Seakale as an annual plant, that is, by planting the thongs in the spring and lifting the whole stock of roots in the autumn, it occurred to me that the growth of the plant and the crown increased in size by the use of artificial manures, these manures being given in addition to stable-dung. With this object, the Seakale quarter was equally divided, and each half was manured respectively in the ordinary manner, and also with basic slag and kainit, and with superphosphate and kainit. These manures were applied about a fortnight previously to planting the sets. Having had satisfactory results from the use of basic slag on various crops, I anticipated similar results with the Seakale, but in this instance I was somewhat surprised, as the best roots came from that portion of the plot that was dressed with superphosphate. The superphosphate being a more soluble manure than basic slag, I concluded the slag was not put into the land early enough for the plants to receive the fullest benefit from the dressing. In showery weather, a slight dressing of nitrate of soda was likewise applied. The results obtained fully justified the use of this manure; but the difference in the two phosphatic manures was most marked during growth and when the roots were lifted. I purpose planting Potatos on this piece of land this season, and I shall be curious to note the influence of basic slag—whether it will show any increase over that part which was dressed with superphosphate. These separate manures will doubtless be used more freely when their right application is understood, but as soils vary considerably in their constituents, discrimination will have to be exercised. The season and the amount of moisture received by the plants while in active growth are two important factors in estimating the benefit accruing from the use of artificials. *P. T. More.*

Veitch's Hybrid Delphiniums from Seed.

From a packet of seed I have secured thirty distinct shades of blue and lavender coloured flowers, equal to the best named varieties in cultivation. The back of a herbaceous border is a very suitable place to grow Delphiniums. I planted such a row 40 yards in length when at Hatfield Priory, leaving a narrow alley between the Delphiniums and the herbaceous border; at the foot of the Delphiniums we grew Iceland Poppies in mixed colours, yellow, white, and orange. The contrast between the healthy green foliage of the Delphiniums, and their rich blue and lavender flowers above, was greatly admired. The ground was well dug and heavily manured previous to planting, and the plants were mulched subsequently with decayed manure. Heavy waterings were afforded in dry weather. If the seeds are sown early, the plants will flower the first season; but a much better way is to sow the seeds outside in May or June, and put out the plants permanently in October or November. Slugs must be checked by dusting the tendershoots with soot and lime, as soon as they appear in spring. *S. Kerry, Faulkbourne Hall Gardens, Witham.*

ALPINE GARDEN.

ANEMONE BLANDA METEOR.

It seems only a short time since we had little variety of colour in the charming Anemone blanda. There were various shades of blue, some comparatively poor in tint, while others were of the deepest and most intense colouring. Among the best of these, when it could be procured true, was the form known as "Mr. Ingram's dark blue variety." A little later appeared a white variety, which has met with considerable favour, though it has not the same value as a dark blue in the garden at the flowering time. Since that time we have had such introductions as the lovely A. b. scythinica, one of the prettiest of all the forms of the Greek Windflower.

It has been observed among some of the lighter coloured forms of A. blanda, that there is a tendency towards a pink shade in the flowers. This is generally more pronounced when the flower first opens, and many have thought that they were on the way to secure the desired pink-coloured variety; when, all the time, they were no further forward, the bloom assuming the blue colouring soon afterwards. More than once have I been disappointed in this myself. It has, however, been reserved to Mr. James Allen, of Shepton Mallet, to succeed in raising a true pink Anemone blanda, and this is all the more gratifying as it has been the result of continued work in raising and selecting seedlings. The variety has been named "Meteor," though in all fairness one cannot say that the colouring is so vivid as we should generally associate with the meteor of the heavens. Meteor is, however, a great acquisition in the way of colour, as it is a true pink, soft and delicate, and reminding one of the colours we observe in some of the same raiser's pink forms of Scilla bifolia or in the pink Chionodoxas; the exterior is purple-rose. The flower is of good size, quite equal in this respect to the greater number of the plants of A. blanda we meet with. When more plentiful, we may look forward to its being a favourite among the now numerous varieties of these early Wind-flowers.

Anemone blanda Florizel.

Last summer Mr. Allen sent me a tuber or two of this Anemone which was, he informed me, a selected variety, and "the finest he had seen." Naturally, one looked forward to its blooming with anticipation, and it is pleasant to be able to say that I was not disappointed with the flower when it came into blossom. Unusually large, and of excellent form, with broad, close segments of the deepest blue colour, it looks remarkably well when open. Certainly it is the finest form of A. blanda I have yet met with, and a flower which should be sought after if it comes into the hands of the trade for distribution.

One of the observations of the late Rev. H. Ewbank, whose loss all who had the pleasure of being among his correspondents must deplore, in one of his letters to me, was that he "wished he had the skill of Mr. Allen in picking out these selections of his." In this case there can be no doubt as to the superior beauty of A. b. Florizel. It may be observed that the exterior of the flower is a warm purple-rose.

Arabis aubrietioides.

I observe that this Arabis is described in a catalogue of the current year as having "large white flowers." This is certainly an error, as the blooms of this Rock Cress are not white, but pale rose; while they cannot be reckoned as "large," in comparison with others of the genus, at least. The whole appearance of the plant, indeed, is singularly reminiscent of the Aubrietias, and the specific name aubrietioides is unusually descriptive of the plant, which, when in bloom, reminds one exactly of an exceedingly pale rose-coloured Aubrietia, with perhaps the pallid colouring accentuated. We have, indeed, so far as I have seen, no Aubrietia of the same pale colouring, though this Arabis is remarkably like one. I except the worthless white Aubrietia sold some years ago, which appears to have retired into well-merited obscurity. Arabis aubrietioides is, if anything, a little earlier than the Aubrietias with me; it seems to flower in comparative shade rather better than the Aubrietias; but, like these favourite spring flowers, it has evidently a preference for a light and dry soil. *S. Arnott, Carsethorn-by-Dumfries.*

BULB GARDEN.

CROCUS TAURI.

Some interest, apart from its value as a garden flower, attaches to Crocus tauri, on account of the question as to whether the true species is in cultivation or not. It is figured in Mr. George Maw's magnificent *Monograph of the Genus Crocus*, from a specimen lent the author by M. de Candolle, which appears to have been from those collected by Aucher-Eloy near the Cilician Gates of the Taurus, and believed by Mr. Maw to be identical with a specimen in the Kew herbarium. The latter I have not had an opportunity of seeing since I procured the corms of the Crocus at present being cultivated as C. tauri, but it is said to have been collected by Mr. Elwes on the road from Kassaba to Arsa, across the Ak Dagh, Lycia.

A few years ago, Mr. Edward Whittall, of Smyrna, sent to this country corms said to be those of C. tauri; and as the locality of Mr. Elwes' find was mentioned by Mr. Maw, and was probably known to Mr. Whittall, one would suppose that these corms were collected there. Those received by others, as well as by myself, from our kind friend in Smyrna, do not, however, bear much resemblance to the plate of C. tauri shown in Maw's *Monograph*, though they make in some respects a faint impression on one's mind that they may be the same. Mr. Whittall's plants appear smaller in all their parts, and the blooms, which do not reach to the size of those shown by Maw, are not self-coloured lilac outside; but are pencilled with dark lines on the exterior, and are more of a blue shade than the colouring in the plate would indicate. They are also produced very close to the ground. One would prefer to place this Crocus along with the varieties of C. biflorus, to which, as Mr. Maw says, it is nearly allied; but from which it is said to be distinguished by "its exceptionally short pale yellow pistil, *its self-coloured flowers* (the italics are mine), and its thinner corm tunic, which more nearly approaches that of C. speciosus, than the strong coriaceous tunic of C. biflorus." As the Crocus sent by Mr. Whittall has not self-coloured flowers, its identification with C. tauri breaks down in an important point. I may observe that others who have grown this "Whittallian" C. tauri have as much doubt about it as myself. Nor is the matter made any

easier by comparison with the Crocus named by Mr. J. G. Baker, "C. tauri var. melanthera," a few corms of which I have the happiness to possess, through the kindness of Mr. James Allen. This is a larger Crocus than C. tauri, of Mr. Whittall, resembling more in general appearance the flower figured by Mr. Maw, but it is distinctly grained on the exterior of the outer segments. From what I have seen of it, I should not care to place it as belonging to the same species as C. tauri of Mr. Whittall, which indeed more nearly resembles the coloured form of C. Crewei without the black anthers, which is practically the distinction between that plant and C. biflorus. I am more inclined to think that we have not yet received the true C. tauri with orange anthers, and that Mr. Baker's C. tauri melanthera comes much nearer that plant, as figured in Maw, than C. tauri as procurable at present. I should, however, be glad to hear from those who grow any Crocus as C. tauri. I may add that the black-anthered one flowers considerably in advance of the other; it is a very pleasing Crocus for the garden. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

Fig. 88.—Anemone angulosa.

HEPATICAS.

The double-white Hepatica has been deemed more or less mythical, so seldom is it seen. It is not even mentioned in Nicholson, Bailey, nor in the *Kew Handlist*, a pretty good evidence of its rarity. At the last meeting of the Royal Horticultural Society, a clump of it was shown by Miss Willmott, and drawn for us by Mr. Worthington Smith, who has illustrated in the margin of the illustration the single variety for purposes of comparison (fig. 89). In the *Kew Index* the Hepaticas are all included under the genus Anemone, but those who lay stress on small points of difference, as they have a right to do if they choose, will speak of Hepatica triloba var. In gardens they will, we suspect, always be called Hepaticas. A. angulosa (fig. 88) differs principally in the foliage from the commoner forms.

PLANT PORTRAITS.

Apple Newton Wonder.—See *Gardeners' Chronicle*, 1898, vol. ii., p. 221. *Garten Flora*, March 1, t. 1512.

Disa Kewensis (grandiflora × tripetaloides.—*Garten Flora*, February 1.

Poire de la Forestrie.—A Pear resembling Beurré Clairgeau, with delicate flesh, becoming more sugary as it matures. *Bulletins d'Arboriculture, &c*, March 1.

FORESTRY.

PEDUNCULATE AND SESSILE OAKS.

I have read in your issue of the 21st ult., Mr. Simpson's remarks on the sessile and pedunculate Oaks, but have not seen the fine Rydalwater and Windermere sessile Oaks he refers to. That they are growing in a very wet climate does not invalidate my observations, that pedunculate Oaks will not thrive on comparatively dry soils which are wet enough for sessile Oaks, and that sessile Oaks will not grow on land liable to inundation, or in very wet, frosty localities. Last year I visited north-west Cumberland, from Lake Bassenthwaite to Carlisle, and although I saw plenty of healthy pedunculate Oaks, I failed to discover a single sessile Oak. In that fairly level, though somewhat undulating country, both the soil and the climate are moist.

One of the best examples of a fine sessile Oak-forest, recently visited by Mr. E. Stafford Howard, Commissioner of Woods and Forests, and by the Deputy Surveyor and woodmen of the Forest of Dean, is at Bellême, in the French Département de l'Orne. There, with 38 ins. of average annual rainfall, all the Oaks are sessile, for the loamy soil on a hill above beds of secondary sand is comparatively dry, while in the lower undulating country below the forest all the Oaks are pedunculate, as in N.W. Cumberland. Perhaps Mr. Simpson will kindly state whether the fine sessile Oaks near Windermere and Rydalwater are growing on well-drained hillsides, or on a permanently wet soil, and what is the nature of the subjacent rock, and the depth and constitution of the soil? The gradient, aspect, and nature of the soil are more important in this respect than the climate. With a steep slope facing from south-east to south-west, and a sandy soil, a very heavy rainfall will not keep the soil moist enough throughout the growing season when transpiration is heavy, for pedunculate Oaks to thrive.

On the hillsides near Chatsworth it is wet enough for sessile Oaks only, while fine pedunculate Oaks grow on the heavy soil and more level ground near the mansion. The Chatsworth pedunculate Oaks that have been felled are about 100 years old, and have been stag-headed for several years, whereas healthy Oaks growing in high forest take about 200 years to mature. The plates in my paper of March 7 clearly show that the dying pedunculate and healthy sessile Oaks were growing on a steep slope, and Mr. Robertson has written for you a clear description of the local conditions, showing that the soil is too dry for pedunculate Oaks, in spite of the comparative humidity of the climate.

Both sessile and pedunculate Oaks require deep, moist soil, but for the pedunculate Oak to thrive there must be sufficient clay in the soil to retain abundance of moisture during the growing season near its roots. The slope should not be excessive, or much rain-water will drain away: nor must the aspect be too hot, nor the ground unprotected by foliage, or much moisture will evaporate without benefiting the trees. In cases of excessive gradient, sandy soil, or hot aspect, even if

Fig. 89.—Double-white Hepatica, and the single-flowered variety.

accompanied by a heavy rainfall, an insufficient residuum of moisture is left for the heavily transpiring pedunculate Oak. I have already explained that the denser foliage of the sessile Oak protects soil from too much evaporation, while that of the pedunculate Oak is insufficient; and the latter Oak also transpires more freely than the sessile Oak, owing to the construction of its leaves. Similar conditions to those I have described prevail near Lake Vyrnwy, with 60 inches of rainfall, and in many French forests, where the slope is too great to retain much of the rain, and in such localities we find that only sessile Oaks will thrive.

Mr. Simpson goes too far in asserting that we cannot distinguish sessile from pedunculate Oaks except by their acorns; the foliage of the sessile variety is quite as distinct from that of the pedunculate Oak as are their respective acorns. Mr. Havelock, Mr. Gillespie, and several other members of the English Arboricultural Society, were with me when we noted the stagheadedness of the Chatsworth pedunculate Oaks, and we all easily distinguished the healthy sessile Oaks from these dying trees. Mr. Robertson was then unfortunately too ill to accompany us, but his notes on the trees, which are incorporated in my paper of March 7, are conclusive evidence.

I disagree with Mr. Simpson that acorns from the extreme forms of pedunculate and sessile Oaks do not yield corresponding plants. In the Spessart Oak forests, both the soil and climate are comparatively dry, and the foresters will not allow any pedunculate acorns to be sown, but sow only sessile acorns. Has Mr. Simpson sown acorns of the extreme forms? and if so, will he kindly publish the results? French and German foresters know by experience that pedunculate acorns produce pedunculate Oaks, and sessile acorns sessile Oaks; and if Mr. Simpson can prove his assertion, he would revolutionise the general ideas on this subject.

Mr. Simpson stigmatises as far-fetched my theory that the shape, position, and distribution of the leaves and acorns of these and other Oaks have important bearings on the moisture requirements of the trees; but he has brought no arguments forward to controvert my views, while the latter have met with approval in Continental forestry magazines. Whether the acorns I gathered at Chatsworth in August, 1900, were abortive or immature can easily be decided by gathering fresh ones in the coming August, which perhaps Mr. Robertson will kindly undertake to do, though that has no bearing on the main question.

Mr. Simpson also states that I ignore the intermediate varieties of these Oaks, and the fact that they frequently grow side by side. I expressly stated that I knew this to be the case in Sussex and in the Ardennes, and generally in localities with sufficient clay in the soil, and a sufficiently gentle gradient to retain the moisture necessary for the pedunculate Oak. The sessile Oak also likes moist soil, but can do with less moisture than the pedunculate Oak, and cannot thrive on land subject to inundations, nor on low wet land subject to severe frost. Mr. Simpson will also perhaps kindly mention the places where he has seen the extreme forms growing side by side, with due reference to the nature of the soil, altitude, gradient, and aspect, as from such notes valuable inferences might be made. The intermediate forms of these Oaks are probably due to hybridisation, and are commoner in Britain than on the Continent, possibly because native local forest growth has there been largely preserved by natural regeneration, while many of our Oaks, in these mixed woods, have been planted from nursery-grown pedunculate Oaks, which have hybridised with the native sessile Oaks, whilst our moist climate favours the pedunculate variety. It is rare now to find any continental foresters introducing pedunculate Oaks in comparatively dry localities, but this was done on 10,000 acres in Compiégne forest about 100 years ago by an inspector of forests named Parmentier, and the present miserable condition of these "Parmentier" Oaks, on the poor sandy soil of the Compiégne forest, has become a byword among French foresters, and was clearly recognised by the English Arboricultural Society last year. The magnificent growth of the sessile Oak on a sandy elevation near Compiégne was a conclusive proof to our Society of the facts I have endeavoured to uphold.

Genera like the Oak with numerous existing species, are now in full vigour of development, and differ from antiquated genera with only one or two existing species, like Yew or Ginkgo, by producing numerous wild varieties; while the extreme forms of the varieties of Quercus Robur produce acorns yielding plants like their progenitors. Taking the Cabbage as an example, I believe that Cabbage, Broccoli, Brussels Sprouts, Kohl-rabi, Cauliflower, Scotch Kale, and other kinds, all spring from the wild Brassica oleracea; yet Mr. Simpson would have reason to complain if his seedsman supplied him with so-called Kohl-rabi seed which yielded a crop of ordinary Cabbage, all these cultivated varieties being true to seed.

There is a variety of the pedunculate Oak, Quercus tardissima, termed Chêne de Juin, or Chêne tardif, in France, growing spontaneously in the Département de la Saone-et-Loire, that never puts out its foliage till June, thus escaping all damage from spring frosts. This Oak is also true from seed, as Mr. Gilardoni, a French Inspector of Forests, stated in a paper read at the last Paris International Sylvicultural Congress. The plates which I enclose show this most clearly, the Oak in full leaf being sessile, and the little plants in leaf, pedunculate, while the leafless kinds are Quercus tardissima. *W. R. Fisher.*

The Week's Work.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Box Edging should be re-planted every few years. To do this, pull the stools to pieces, cut back the old roots severely with a sharp bill-hook, make the ground perfectly level and firm, then take out absolutely upright trenches, and replant, placing some fine soil round the roots, which should not be exposed to the air longer than is necessary. If relaying is not necessary, clip the growth evenly and neatly at the top and sides.

Peas.—Complete forthwith the planting-out of all Peas raised in warmth, as they should not become drawn in the haulm or starved. The ground for these plants should have been manured and trenched some months ago. Much care must be exercised in the planting, so as not to bruise or bend the stems. Pea-sticks should be at once put in, and between them a few twigs of Spruce Fir, Laurel, &c., as a protection against wind and frost. Peas coming through the soil should be dressed with fresh soot and wood-ashes; and in gardens where birds give trouble, netting or crossing black thread should be placed over them. Make sowings every week or ten days. An important point in the cultivation of Peas is to afford them plenty of space, especially the large-podded varieties.

Broad Beans.—Plants raised under glass should be planted out in a warm spot, and sowings made of Longpods and Green Windsor for succession.

Onions.—Plants raised under glass, and well hardened off, may now be planted on well-manured and deeply trenched land. First apply on ordinary land an abundant dressing of fresh soot and wood-ashes, and on heavy land a dressing of road-grit may be applied as well. The surface should then be pricked over, breaking the lumps as finely as possible in the process. Land that is of a light nature should be trodden all over regularly, and then be levelled with a wooden rake. Let the plants be lifted with care, drawing drills with a hoe, or making holes with a dibber, and inserting the plants just so deeply as will keep them steady, pressing the soil firmly against the roots. Unless the weather be showery, water should be applied, and frequent syringings afforded, till the plants have become established. Winter Onions may be replanted in a similar way.

New Zealand Spinach (*Tetragona expansa*).—In order to obtain early gatherings, the seed should be sown in boxes in gentle heat, and the young plants pricked off in 60's to the number of three in each, as soon as they are large enough to be handled. When established, gradually harden off, and plant out in May. Continue to sow seeds of the ordinary Spinach at fortnightly intervals, and thin the plants to 4 inches apart when they are large enough to be handled readily.

Chicory.—Sow in shallow drills drawn at 12 ins. apart, and thin the young plants to 9 ins. apart in the rows. Select for Chicory a deep soil that was heavily manured the year before, and trenched last autumn or winter.

Parsley.—Sow forthwith for summer and autumn use in drills drawn at 1 foot apart, sowing thinly if the seed be new. When thinned, the plants may stand at 6 inches apart. Several plantings may be made from this sowing.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Protecting the Blossoms of Plums.—The mild weather of the past week having hastened the opening of the flower-buds on wall trees considerably, the different varieties of Gages should be afforded protection, more especially the Transparent Gage and the Early Transparent. A good means of doing this is to employ double fish-netting over the trees, keeping it away from the trees by means of poles thrust up beneath the coping or coping-boards. If no netting be available, branches of the common Laurel of a light kind may be stuck under the main branches and allowed to hang down. The early-flowering varieties of Pears should receive a similar kind of protection.

The Gooseberry.—Vigorous young bushes hard cut back this season will frequently push forth more shoots than should be retained for the proper formation of a crown, and these should be thinned at this date, and only such allowed to grow as will afford a shapely one.

The Raspberry.—As soon as it can be seen which of the young canes are likely to be the stronger, the less vigorous should be removed at the ground-level with a knife or *sécateur*, and all canes coming up between the rows cut away with the hoe.

The Fruit-room.—Late-keeping Apples should be frequently examined, and decayed fruits removed. Chelmsford Wonder, an excellent culinary Apple of recent introduction, is keeping well at Dropmore, as also is Newton Wonder. Sturmer Pippin, owing to the sunless autumn, is of poor flavour.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Dendrobium Phalænopsis Schroderiana.—This useful and beautiful species is indispensable in gardens in which cut flowers are much in request in the autumn months. The plant is now imported in large quantities and sold at very reasonable prices, so that it is within the reach of everyone who possesses a warm glass-house. It requires much heat and moisture when in full growth, but after flowering a temperature of about 60° is a suitable one in which to rest it during the winter, and more especially if a small house can be set apart for its cultivation, it being then practicable to obtain a drier atmosphere than is possible when other plants are grown along with it. Most of the plants are now making new growth, especially newly imported plants which have come into this country during the winter. Thus far, attention should be given to potting such plants as require this

operation. The temperatures should be kept at the same figures as those given recently for the warmest house.

Potting-compost, &c.—Plants recently imported should be the first to receive attention, the renewal of growth beginning much earlier than in those longer established. No potting should be done before the new growths have attained generally a height of 2 ins., at which stage a cluster of new roots emerges from the base of the new growth. The largest plants should be placed on inverted pots on the stage, and the smaller ones in pans, and hung up to the rafters. The plant needs, when in full growth, plenty of water at the root, and to be moderately firmly potted in turfy peat two-thirds, rough Oak-leaves partly decayed one-third, together with much silver-sand. Let the surface be covered with a layer of fresh sphagnum. The plant does best if the root-space is as confined as possible. After potting, water should not be applied for some time, damping between the pots and overhead syringing sufficing till the roots have entered the compost. The thinnest of shading material should be used, and this only during the warmest hours in summer.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Tree Carnations.—Pot off rooted cuttings directly they are ready. Stand the plants in a temperature of 55°, and keep the atmosphere rather close, applying shade for a few days. Afterwards remove the plants to a cool structure, and keep them near to the glass. Plants that were rooted in the autumn may require larger pots, in order that they may be kept in a growing state, those of from 5 to 7 ins. in diameter being suitable. As a potting compost use turfy-losm three parts, and one part leaf-soil and dry decayed cow-dung, and enough sand to give porosity. Pot the plants moderately firmly, and place a neat stake to each; remove the tip of the shoot when about 3 inches high, and once or twice afterwards when an inch or so of growth has been made. If green-fly infest the plants, apply tobacco-powder, or the fumigator. Afford plenty of air during the day. The Souvenir de la Malmaison varieties should be kept cool, but avoid cutting winds coming into contact with the plants. Support the flowering shoots betimes, and afford a little weak soot-water to those in small pots, or those that have not filled their pots with roots.

Gloxinias.—Plants raised from seed sown at the end of the month of January, or early in February, will require dibbling into other pots or pans at 2 to 3 ins. asunder, using a light sandy soil, having some finely-sifted peat in it, and take great care that the tiny plants are not bruised, and that they are placed out of the reach of slugs, woodlice, &c. Apply water with a fine-rose can, shade from ardent sunshine, and keep them near the roof-glass in a temperature of 60° to 65°. Before the leaves meet, transfer the plants to 3 and 4-inch pots respectively. Dormant tubers should now be placed in moist heat, and treated as regards soil, &c., similarly to those started at the end of January, when full details were given. These are showing flower, and may be afforded weak manure-water once a week, keeping it away from the foliage. Shade for a few hours daily when the weather is bright, and keep them within 6 inches of the glass. Plants raised from seed sown now should flower towards the autumn.

Seed-sowing.—Prepare well-drained pans or pots, filling them with a light kind of soil, and sow seeds of Campanula pyramidalis (blue and white varieties), Francoa ramosa, Impatiens Sultani, Cyperus alternifolius, and Celosias; cover slightly with soil, put slates or paper over the pots, and set in heat till germination takes place. The Campanulas come better in a cold frame.

Clivias.—These plants flower the best when not disturbed at the roots often. Any plant that would be improved in health or appearance by being divided, may be operated upon as soon as it has passed out of flower. A plant consisting of one good growth, and standing in a 6-inch pot, makes a useful object for decorative purposes; but if larger specimens are required, 12 or 14-inch pots may be used, and from three to six strong growths placed in each. Carefully work down the soil among the roots, and avoid affording much water at the root till growth starts anew. The best kind of soil for Clivias consists of turfy-loam, peat, a small quantity of charcoal, and sand. The plants may be raised from seed sown forthwith; they will flower the third or fourth year. Established plants require an abundance of water during the next few months, and should be afforded a light position in the greenhouse.

FRUITS UNDER GLASS.

By T. H. C.

Pot Vines.—The earliest fruit is now colouring or in the "stoning" stage, and may be subjected to a drier atmosphere and a little constant ventilation except the weather be severe. Afford copious supplies of diluted liquid, and occasionally a little of Thomson's Vine Manure sprinkled on the surface-soil, and watered in. When damping-down in the evenings, sprinkle the drainings from the stable or cow-sheds over the paths, &c., and do everything possible to keep the foliage clean. When the bunches are colouring, afford a temperature of 65° at night and 75° to 80° by day.

Early Vinery.—If the berries have been insufficiently thinned, cut out all berries that are small, seedless, or that have no room to swell properly.

Melons in Pots.—Before the fruits attain to a large size, support them in nets attached by the four corners to the trellis. Maintain a bottom-heat of about 85°, adding fresh hotbed material if the heat declines much; afford a top-dressing of loam and dung if space will allow, and apply weak liquid-manure, and an occasional sprinkle of an artificial fertiliser, affording water to carry its principles to the roots. Syringe the foliage every day at closing time till the fruits begin to ripen. The night temperature may range from 70° to 75°, and in the daytime from 10° to 15° higher, with plenty of moisture and ventilation.

Succession Melons.—Pinch the points out of plants when they have grown to within 18 ins. of the top of the trellis, and the side-shoots at one leaf beyond the fruit; maintain a moist atmosphere, except at mid-day, when the plants are in flower, at which time the female flowers should be carefully pollinated. Plant out succession plants as soon as they have grown one strong leaf beyond the cotyledons.

Melons in Frames.—Those not having the convenience of a Melon-house or pit may grow excellent crops in frames placed upon hot-beds made of stable-dung, or this mixed with tree-leaves. Select a site open to the south, and make up the hotbed 4 feet thick at the back, with slope of 9 inches to the front, and 2½ to 3 ft. wider than the frame, trampling the material firmly. Place a barrowload of rich turfy loam under each light, raising it slightly in the centre, and cover with a 3-inch layer of the same kind of soil the rest of the hotbed. As soon as the rank heat and steam subside, plant a Melon in the centre of each mound. After it has made five or six leaves, pinch out the point, which will cause it to branch. Attend to stopping the shoots and pollinating the flowers, and after a good set has been secured, apply a rich top-dressing to the bed. Ventilate carefully, and close early, so as to make the most of the solar warmth, when a light syringing of the foliage and surface of the hotbed will be beneficial. Good free setting varieties are Hero of Lockinge, Royal Sovereign, and The Countess.

Cucumbers.—Now that this year's raised plants have come into bearing, the old winter plants may be pulled up, the soil cleared out, the house cleansed, and the beds renewed and planted. Young, vigorous plants should be afforded weak liquid-manure and frequent top-dressings of stable-dung in a partially decayed state. Keep the foliage thin, and do not let the plants carry too many Cucumbers. Afford a night temperature of 70° to 75°, and one of 10° to 15° in excess of these figures in the daytime. At closing time syringe the foliage slightly, and provide a moist state of the air at other times. The cultivation of Cucumbers in frames may for the present be the same as that recommended for Melons.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Kniphofias (Tritomas).—Release the old leaves that may have been twisted together as a protection to the crowns, and remove any protective material that may have been applied. Division of the plants may be performed now, if circumstances render this necessary. Afford the plants a heavy mulch of well-decayed stockyard manure.

Ericas ought to be more used in pleasure-grounds. Three of the species and their varieties stand out very prominently as decorative subjects, viz., E. carnea, E. mediterranea, and E. vagans. The present is the best time for planting Ericas, and if some leaf-mould can be mixed with the staple, they will make good growth. Sometimes it is possible to plant Ericas in large slabs, placing these close together, as in turfing a lawn, and filling-in the interstices with soil, and by this means an immediate effect is obtained.

Irises.—Most of the rhizomatous Irises, including the gorgeous I. Kæmpferi, may now be planted with safety, as new roots are already forming or about to form. Most of these Irises enjoy a deep rich soil. I. Kæmpferi appears to succeed best where it can get plenty of sunlight, and is afforded a wet, swampy soil whilst growing, and a dry one during the winter, which means that the summer supply must be taken from a source that can be checked or diverted during late autumn and winter. Named varieties of this Iris may be got, but they are rather expensive, and excellent flowers are to be found among unnamed varieties.

Tea Roses.—Where additions have to be made to the stock of Roses growing in pots, and pot-plants have been bought in for the purpose, the latter should be planted out during the first spell of mild weather, providing that the soil is in good condition for the purpose. Set the plants rather deeply, so that the stems are buried two or three inches deep. Arrears of pruning should be brought abreast of the season, unless really cold weather should intervene.

Herbaceous Phloxes.—If cuttings be now taken, inserted singly in small pots, and struck in moderate bottom heat, they will give single spikes of flower that will come-in a week or two later than the older plants. They should be planted out in good soil as soon as they have formed sufficient roots to hold a ball together.

Bamboos.—Though Bamboos are very unsuitable in general to English gardens, they have become the fashion, and must therefore be dealt with here. Planted now either as established plants in pots, or as divisions taken off with plenty of roots, they have the best chance of success, to which end three other aids have to be provided, viz., a sheltered position, a wet soil (which must be constant during the whole period taken in the development of the culms), and a deep soil, rich in humus.

Shrubby Calceolarias.—I am opposed to the practice of planting Calceolarias out under glass-coverings in a very rich soil at this time of the year, as many gardeners do, but prefer to plant direct to the flower-bed or border where the plants are to flower, and use some means of protection, such as inverted flower-pots, and add further protection, if found necessary. Years of Calceolaria culture on a light soil convinced me that the only method by which the collapse of the plants could be prevented was to get them established very early, and that the few weeks spent in the spring in a soil much richer than that into which they must ultimately go, do more harm than good.

Annuals.—Prick off half-hardy annuals raised under glass into beds made up in warm frames, or into boxes placed in similar appliances. A knowledge of the size to which the plants attain should be acquired, in order to fix the distances at which they should be pricked off, otherwise there will be overcrowding or waste of space. For most kinds of plants a nice open soil about 3 inches deep suffices to make removal easy and safe. Zinnias may be sown in frames having a bottom-heat of 75°. Among annuals which should be sown at this date are French and African Marigolds, not forgetting the very dwarf French varieties Legion of Honour and Silver King, which are charming edging plants of low growth.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, APR. 4.—Société Française d'Horticulture de Londres Meeting.

TUESDAY, APR. 7.—Royal Horticultural Society Committees Meeting, Lecture on "New Shrubs and Trees."

SALES FOR THE WEEK.

MONDAY, APRIL 6—
Perennials, Border Plants, Lilums, Fruit Trees, &c. at 67 and 68, Cheapside, by Protheroe & Morris, at 12.

WEDNESDAY, APRIL 8—
Palms, Plants, Standard, Dwarf, and other Roses, Perennials, Lilums, Ferns, &c., at 67 and 68, Cheapside E.C., by Protheroe & Morris, at 12.—Roses, Palms, Bays, Aspidistras, Begonias, &c., at Stevens' Rooms.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —47·1°.

ACTUAL TEMPERATURES:—
LONDON.—*April* 1 (6 P.M.): Max. 53°; Min. 35°. *April* 2 (Noon): 48½°; Dull, rainy.
PROVINCES.—*April* 1 (6 P.M.): Max. 50°, East Coast England; Min. 43°, N.E. Scotland.

The Royal Botanic Society.

THIS Society held on Wednesday last its Spring Show, a report of which will be found in another column. The occasion was signalised by an event which may have far-reaching consequences. This was no less than the opening of a Botanical and Horticultural Laboratory by Mr. SHEPHEARD, Chairman of the London County Council Technical Instruction Board. Not a week passes but some point turns up for enquiry or comment. Problems relating to plant-life, to the diseases of plants, to injurious fungi and destructive insects, to methods of cultivation, to the application of suitable manures, to nomenclature and classification, crop up daily, and are dealt with as well as the exigencies of a weekly newspaper will allow. But many of the subjects cannot be thus summarily dealt with, even by the experts who are so kind as to render us their valued aid. Many of them require for their solution prolonged investigation, comparison, and careful experiment. These are fit subjects for a Royal Botanic Society to undertake, and we greatly rejoice at the prospect that the Society realises its responsibilities, and is about to avail itself of its resources.

The Society, after conferring with the London County Council Technical Instruction Board, established a gardening school in 1897. During the first year there were fewer than a dozen pupils, but at its close the results of the examinations led the Technical Instruction Board to double its grant to the scheme. At the present time there are thirty-five pupils, including twenty-one males and fourteen females.

The laboratory that has just been built is undoubtedly intended primarily for teaching purposes; we hope, however, that the desires expressed by some of the persons who will be responsible for its management, that it will be possible to carry out important research work, may be fully realised, as there is already provision for teaching purposes elsewhere.

The Earl of ABERDEEN presided at the meeting on Wednesday last, when the diplomas were presented to the successful students at the school, and the laboratory was formally opened. His Lordship alluded to the fact that some attention had been recently drawn to the circumstance that their Society permitted practices of a more or less social character. He declared that they were an essential part of the proceedings, because they provided the means by which the Society was enabled to do such educational work as that which had brought them together that afternoon.

Dr. W. CODDE ADAMS, chairman of the school committee, said the Society was able to teach horticulture from artistic and scientific standpoints, but it could not teach it from the commercial or money-making point of view, and he believed it to be due partly to this, that their methods and work were looked upon unfavourably in some quarters. There had been spent upon the school a sum of £2000, of which £850 had been given them by the Technical Education Board. The Society had found it possible to provide good situations for all the students that had left the school, and had been unable even to meet the demand for gardeners who had been taught there. The new laboratory had been erected with the help of the Technical Instruction Board, and a conservatory would be built close to it, in which they hoped to conduct biological and botanical experiments.

Mr. SHEPHEARD explained the position of the Technical Education Board in respect to the encouragement of all trades, and said that the Board usually started by aiding the practice of an art, but, as early as possible afterwards, the study of the science connected with the art was added.

Dr. KIMMINS, Chief Inspector under the same Board, said that, following the formation of the Royal Botanic Society's School of Practical Gardening, he had found the work done there to be of such excellent quality, that others and himself thought it very desirable that means should be obtained for teaching the students more than was possible by practice alone. He rejoiced that the Laboratory had been built. There were so many problems of the greatest interest that might become subjects of experiment there, such as "The consideration of the Atmosphere so far as it affects Plant Life," the Study of Plant Foods, the Classification of Plants, the Diseases of Plants, and how best to combat them, &c.

Professor BOTTOMLEY, of King's College, said that the Laboratory would be of immense value. There was the Jodrell Laboratory at Kew, but Kew was too far away, they could not go there every day, and the Jodrell Laboratory was subject to restricted conditions as to its use. To botanists in London he was sure the new Laboratory would be of the greatest use. He expressed a hope that one of the first subjects of research in that Laboratory would be the action of carbon-dioxide gas on plants. He hoped that the Laboratory would be used for the purposes of botanical discovery and scientific research.

Mr. C. BRINSLEY MARLAY, Vice-President of the Royal Botanic Society, referred to the criticisms recently passed upon the Society, saying that it had been stated it was devoted solely to amusements. That this was not the case was proved by the fact that the social events were absolutely necessary in order to provide the means for affording the practical and scientific teaching and study the Society had undertaken.

Before the formal opening of the Laboratory, special reference was made to the excellent services rendered to the scheme by Mr. W. BRYANT SOWERBY (Secretary), and Mr. HAWS, Superintendent of the Society's Gardens, and instructor in horticulture at the Society's school. The work of the Laboratory will be conducted under the direction of Mr. E. J. SCHWARTZ, B.Sc., demonstrator of Botany at King's College, London.

We believe that preparations will be made to conduct a series of experiments in the autumn in respect to the use of anæsthetics for the purpose of forcing plants.

These matters have been repeatedly pressed upon the authorities of the Royal Horticultural Society with reference to their unrivalled opportunities at Chiswick, and only a week or two since a memorial was sent up from the Scientific Committee to the Council advocating the very things that the Royal Botanic has now inaugurated. No answer has yet been received to that memorial. We are thus at liberty to express our decided opinion that under existing circumstances it would be far better not to think of leaving Chiswick at present, but to develop its resources in the way indicated.

If Chiswick must eventually be given up, that fatal necessity need not be considered for several years to come, by which time the Hall will have become an accomplished fact, and there will then be the opportunity for constructing a new garden conducted on practical lines with scientific method. Should both Societies establish a scientific enquiry-office of the kind indicated, so much the better. The field is so vast and so diversified, that a hundred such "stations" would not be too many.

The Sale of Poisons.

A BILL to "further regulate the sale of Poisons" has been introduced into the House of Commons. Its object, of course, is to protect the public more effectually than at present against accidental or wilful poisoning. Recent events have emphatically shown the necessity for some further enactment, and all will agree in principle that the sale of poisons should be effected with as many and as efficient safeguards as possible.

One of the proposed enactments provides that no "poison" shall be sold except in a "shop" that has been duly registered for the purpose, and which is conducted by a "registered person." The definition of "poison" is here taken as identical with that within the meaning of the Pharmacy Act, 1868. We do not find that any definition of the word "shop" is afforded, but from internal evidence we take "open shop" to mean a

retail establishment as distinguished from a wholesale house or manufactory. In practice, as we know, this distinction is not always acted up to; and if a retail shop is to be registered for the sale of poisons, *à fortiori*, the wholesale manufacturers' premises should be registered also.

A "registered person" is defined as a "pharmaceutical chemist, or a chemist and druggist." Whether a "chemist and druggist" who has not passed the full Pharmaceutical curriculum should be entitled to the same privileges as a member of that Society who has done so, need not be discussed here. Our concern is with the poisonous substances used for agricultural or horticultural purposes. These, of late years, have become actual necessaries for the cultivator. Such dangerous substances should, nevertheless, in our opinion, be duly and conspicuously labelled "Poison," and sold in sealed packages, or in bottles or other receptacles of distinctive form and appearance. A register of sales and of persons to whom the poisonous substance is sold, should also be kept. It is not necessary, in this class of cases, to insist on the vendor being either a pharmaceutical chemist, or a chemist and druggist. To do so would be to create a monopoly, that however justifiable in some cases, is not requisite in the case, say of horticultural sundriesmen or seedsmen dealing with poisons in bulk, not intended for human consumption, and which are adequately labelled.

The good intentions of the Bill are, as it seems to us, likely to be frustrated by any undue infringement of the liberty of the subject calculated to excite antagonism. At the same time, it must be admitted that in the past liberty to vendors has degenerated into danger to purchasers. We have ourselves on various occasions purchased highly poisonous substances and mixtures without the slightest restriction or enquiry, and in some cases there has been no indication on the package or receptacle of the poisonous nature of its contents. Samples of weed-killers, insecticides, and other substances have been sent on various occasions to our office without any specific indication of their dangerous character. Had we attempted to buy these materials from a pharmaceutical chemist, we as purchasers, and he as vendor, would rightly have been subjected to various formalities, from which the seedsman, the cornchandler, the ironmonger, and the sundriesman have till lately considered themselves as exempt.

Quite recently we have seen a preparation intended for the destruction of ants. This preparation, as we have been informed, contains arsenic in very large quantity, namely, not less than 24 grains to the ounce, two grains being a fatal dose. A pint bottle would thus contain sufficient arsenic to poison one hundred and fifty or more adults. The actual cost of the "mixture" is estimated at about three pence half-penny. What the selling price is we do not know, but in all probability it is one which admits of a very large profit. It is true that to the sample we saw a label with the word "poison" was affixed, but the bottle was an ordinary medicine bottle with nothing distinctive about it to prevent carelessness or accident.

It should not be difficult to frame an enactment which should provide all reasonable safety to the public in the sale or purchase of poisons, without hampering legitimate trade by whomsoever conducted. Whether the Bill, a draft of which is before us, fulfils these requirements is, we think, open to doubt, but, in its passage through the House of Commons, it may be subjected to various amendments and alterations. The Bill has been introduced by Mr. Thomas Lough, and is supported by members representing all shades of political opinion.

Royal Horticultural Society. — The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will be held on Tuesday, April 7, in the Drill Hall, Buckingham Gate, Westminster, 1 to 5 p.m. A lecture on "New or little known Shrubs and Trees," will be given by Mr. George Nicholson, A.L.S., V.M.H., at 3 o'clock.

—— At a general meeting of the Society held on Tuesday, March 24, sixty-three new Fellows were elected, among them being, Lady Knutsford, Lady Meysey-Thomson, Lady Mary Currie, and the Hon. Kenelm P. Bouverie, making a total of 468 elected since the beginning of the present year.

—— Exhibition of British Grown Fruits and Vegetables. The Royal Horticultural Society will hold an exhibition of British grown fruits and vegetables at Chiswick, on September 29, 30, and October 1. The Prize Schedule is now ready, and contains, in addition to the list of prizes, an authoritative list of dessert and cooking Apples, Pears, and Plums. Special prizes are offered for preserved and bottled fruits. Copies of the schedule can be obtained on application to the Secretary, Royal Horticultural Society, 117, Victoria Street, Westminster. Applicants should enclose a penny stamp.

—— Prizes for Auriculas, Primulas, and Daffodils.—At the Royal Horticultural Society's fortnightly meeting, to be held in the Drill Hall, Buckingham Gate, on Tuesday, April 21, special prizes will be offered for Auriculas and Primulas by the National Auricula and Primula Society. These are open to members of that Society, and to Fellows of the Royal Horticultural Society. For schedule of prizes, see the Royal Horticultural Society's Book of Arrangements for 1903, pp. 61, 62; copies sent free on application to the Secretary, R.H.S., 117, Victoria Street, S.W.; or separate schedules can be obtained from Mr. Henwood, Hon. Sec., N.A. & P.S., 16, Hamilton Road, Reading, to whom notice of intention to exhibit must be sent four clear days before the show. Special prizes will also be offered for Daffodils, open to amateurs and gentlemen's gardeners only. First prize, a £7 7s. Silver Cup (presented to the Society by Messrs. Barr & Sons); 2nd prize, R.H.S. Silver Flora Medal. Group of Daffodil blossoms grown entirely outdoors (Polyanthus varieties excluded) must include some of each section Magni, Medii, and Parvi-coronati; must contain at least thirty varieties distinct, and at the least three blooms of each must be shown. Not more than nine blooms of any one variety may be put up. To be staged in bottles, vases, or tubes, not exceeding 3 inches in diameter at the top (inside measurement), and all the stems must touch the water. Quality of flower will count far more than quantity, and correct naming and tasteful arrangement will be duly considered. Any hardy foliage may be used, Daffodil or otherwise. No prize will be awarded unless there are at the least three competitors.

The Fruit and Vegetable Show at Chiswick.—Whether the Chiswick gardens are to be surrendered by the Royal Horticultural Society in the near future or not, we are glad that during the present year there will be at least one event there of sufficient interest and importance to induce a large number of the Fellows to visit again the scene of so many inspiring memories. The schedule of prizes offered for competition at the show of fruits and vegetables to be held at Chiswick on September 29, 30, and October 1, has now been issued. In Division I. there are thirteen classes for fruits grown under glass or otherwise, by gardeners or amateurs; Division II. is reserved for nurserymen and market-growers, who may exhibit in two or three classes. The two classes for fruits grown entirely out-of-doors are for 32 feet run of 6 feet tabling, and 16 feet run respectively; and the class for orchard-house fruit and trees, 32 feet run. No other spaces but these will be allotted to nurserymen wishing to show fruits, and no awards of any sort will be made to nurserymen who do not conform to the regulations in regard to the dishing of their fruits and other matters. Division III., containing twenty classes, is for fruits grown in the open air by gardeners and amateurs; and Division IV. contains thirteen classes for special district county competitions. This is a very good feature of the exhibition, and we hope the counties, including Scotland and Ireland, will be better represented than usual. Division V., for single dishes of Apples and Pears, has been curtailed, there being at least thirty classes fewer than in the schedule for 1902. It is apparently the intention to have a few such classes for standard varieties, and change them each season.

The market growers' classes, that constituted Division III. last year, have been omitted entirely; and Division VI. provides four classes for fruits preserved, or in bottles. The sixty-nine vegetable classes are contained in Divisions VII. and VIII. The principal competitions will be in classes for collections, two being provided for members of the trade and two for amateurs. The trade may choose between 100 square feet and 50 square feet, and amateurs between 50 square feet and 24 square feet.

Further displays will be made of Potatos, Pumpkins, and Gourds, and the remaining classes will each represent a particular kind or variety of vegetable.

A Conference will take place at 2.30 p.m. on September 29, Mr. Geo. Bunyard, V.M.H., presiding. The papers will include the following:—1. On Cooking Vegetables, Dr. Bonavia and Mr. Jas. Hudson, V.M.H. 2. On Vegetables all the Year Round for a Private Family, by Mr. W. H. Divers. 3. On Vegetables for Exhibition, Mr. Ed. Beckett. 4. On Vegetables for Market, Mr. W. Poupart. A cold luncheon will be provided on Sept. 29, for which all interested in the Show can obtain tickets (3s., including wine or beer), on application to the Secretary before Sept. 27.

The Surveyors' Institution. — The next ordinary general meeting, being the second of the two afternoon meetings arranged for the convenience of country members, will be held in the lecture-hall of the Institution on Monday, April 20, 1903, when a paper will be read by Mr. H. Trustram Eve (Fellow), entitled "Modern Methods of Valuation of Manurial Residues." The chair will be taken at 4 o'clock. The Institution will be closed from Thursday evening, the 9th, to Wednesday morning, April 15.

The Prevailing Mildness of the Season.—In some respects vegetation is not more forward than in an average season, in spite of the abnormal warmth at times. A correspondent residing at Orpington, Kent, informs us, however, that he was able to cut a dish of Asparagus from beds in the open on March 30; and other communications showing the earliness of Asparagus have been received.

The Semi-Teetotal Pledge Association. —"I solemnly undertake by God's help to abstain from all intoxicating drink except at my mid-day and evening meals." Such is the simple and definite pledge of the Semi-Teetotal Pledge Asso-

ciation, of which Lord Roberts is President, and Mr. G. H. F. Nye, the Grosvenor Library, Chapel Street, London, hon. secretary, a pledge which is being subscribed to by thousands of persons resident not only in our own country, but in many places abroad. It is a pledge which is at once so simple and definite that all who drink in moderation may sign it. By its universal adoption the habits of "nipping" and "standing drinks"—customs which have ruined many a fair home—and led to in no small degree to that excessive intemperance which is a standing reproach to our nation, will disappear, the tone of society will be elevated and improved, and the health of the people will be distinctly better. The Medical Press is entirely in favour of semi-teetotalism as against total abstinence. Many life abstainers recognise that all cannot be teetotalers, therefore this pledge has been formulated, and it appears to be exactly what hundreds of thousands of people have long looked for, and felt to want, for it affords just that help and assistance which they have sought elsewhere in vain. In connection with the work, the Association has issued an official badge, of neat design, to be worn by members, which can only be obtained at the address above given.

Canada as a Field for Emigration.—We have received the following letter for publication:—"About a year ago I ventured to address you a letter having reference to the question of emigration to Canada, with the view of enlisting your sympathies in the settlement of the vast fertile lands of the Dominion with people of British origin. In the interval, the particular portion of the Dominion to which the attention of the people of the United Kingdom is now being specially directed has made exceptional progress, upwards of 80,000 persons having arrived from other countries, and established new homes in the Canadian North-west. In this connection, it is a source of satisfaction to know that the movement from the United Kingdom has shown a considerable expansion. Permit me, however, to say that while this is the case, yet I am not at all satisfied—a feeling which the Canadian Government shares—that the number of British immigrants is as large as the conditions and prosperity of the country, and the opportunities that are offered to settlers, would fairly entitle us to expect. While not desiring to take up your time by a lengthy statement, I trust that your sympathy and influence may again be exerted in so far as you may feel justified in doing so (in regard to any persons who may contemplate emigration, and may confer with you on the subject), in making better understood and appreciated the advantages of Canada's greatest and nearest possession. The results of the harvest in Manitoba and the North-west Territories for the year 1902, since I had the pleasure of communicating with you, have fully justified everything that has been said in favour of Canada as a field for the settlement of people from the British Isles. I take the opportunity of writing to again summarise a number of the advantages which, amongst others, Canada offers:—

1. A free grant by the Government of 160 acres of land to every male settler of eighteen years and over.
2. A healthy climate.
3. A country where law and order are most strictly observed and enforced.
4. A system of education, and educational institutions, equal to those of any other country.
5. Churches of various denominations, which are established, even in new districts, as rapidly as the country settles.
6. Excellent transportation facilities for carrying to market the products of the farm.
7. Good local markets, and fair prices for products.
8. The fullest recognition of civil and religious liberty.

To those who have an aptitude or liking for agricultural pursuits, who are willing to work, and to exercise reasonable economy, especially during the first few years, farming is undoubtedly more to be relied upon as an industry in Canada than in any other country in the world. In addition to the other advantages offered to settlers from the United Kingdom, the fact must also appeal to them that Canada is British territory, and that those who make their homes in the Dominion maintain their birthright, their allegiance, and their flag, and remain British subjects in every sense of the term. In conclusion, let me say that the Canadian Government feels that it can, in view of all the circumstances, appeal with confidence to the emigrating population of Great Britain—there are something like 100,000 leaving the United Kingdom annually—and ask them to remember the inducements which Canada offers to them; superior perhaps, from many points of view, to those in any of the new countries to which emigration is now being invited. I therefore beg to suggest that your influence may be used on behalf of Canada, whose doors are open to the people of the Mother Country. British settlers may, if properly advised and directed, have a share in providing themselves and their families with happy and comfortable homes, and profitable employment, and in building up the British Empire, of which the Dominion is proud to form a part. *Strathcona, High Commissioner for Canada, 17, Victoria Street, Westminster.*

West Indian Agriculture.—Under the energetic direction of the Commissioner, Dr. Morris, the Department of Agriculture is making satisfactory progress. Over 50,000 copies of official bulletins and other publications were distributed among those concerned last year, and although practically nearly everything is distributed gratuitously, yet the sale of publications reached nearly £100. Messrs. Dulau & Co., Soho Square, are the London agents.

Horticultural Club.—We learn that after the monthly dinner of the Club, to be held at the Hotel Windsor, on April 7, at 6 p.m., Mr. J. W. Burbidge, M.A., will descant upon horticultural progress, a subject which he, as an expert, is specially well qualified to speak about.

Winchester.—The municipal authorities of this ancient city have exposed themselves to no little animadversion. They invited competitive plans for laying out a pleasure-ground. Twenty-five plans were sent in, of which three were selected for special commendation, and of these three one was adjudged the 1st prize. Not knowing the locality, nor appreciating to the full the assigned conditions, we are at a loss to know what the adjudicators found in the plan so honoured to award it so high a position. From all we can gather from the local papers, the accepted plan does not give evidence of much taste or convenience in the arrangement of the ground, nor much knowledge of the trees and shrubs with which it is proposed to decorate or shelter it; whilst the estimates of cost by no means engender confidence as to their even approximate correctness. The Winchester folk must, it would seem, try again before they expend the rate-payers' money.

"Flora and Sylva."—This is the title of a new monthly magazine to be edited by Mr. William Robinson, and published at 17, Furnival Street, Holborn. The newcomer has been awaited with eagerness, as rumour led us to anticipate something out of the common way, and this anticipation will not be belied. Its full title is *Flora and Sylva, a London Magazine and Review of new and rare Plants, Trees and Shrubs, Fruit and Vegetables, the Garden Beautiful, Home Woods, and Home Landscape.* It is in quarto form, on thick, dull white, rough-edged paper, and printed in large, bold type. The coloured plates are on even thicker paper, and are executed from drawings by Mr. H. G. Moon. Mr. Robinson has secured the co-operation of some of our most eminent horticulturists. At the time of writing we have only seen the prospectus, but that gives promise of an *ouvrage de luxe.* It is to be published in half-a-crown monthly numbers; or may be had by post by those who do not fear the risk of spoiling the plates, for an annual subscription of 33*s*.

Ginseng (Aralia quinquefolia) will not grow in this country. It has been tried again and again at Kew; the last time according to directions given by Mr. Stanton, who grows it successfully near New York; and I know of several other gardens in England where it has been tried. The directions given by Mr. J. J. Willis (p. 171) are, he informs me, taken from *Bulletin* 62 (1903) of the Pennsylvania State College, and are practically those given by Mr. Stanton. Mr. Budde, of Utrecht, in his note (p. 181), stated that Ginseng was easily cultivated in Holland, where it was grown as a market plant; but the plant he means, and of which he kindly sent me a leaf, is Pseudopanax (Aralia) crassifolium, a New Zealand shrub, of which there are large examples in the temperate-house at Kew. I have seen a plant of Ginseng in flower in the rock-garden at Kew, but it was the sole survivor of a large number that were planted a few months before. Evidently there is some condition, as in the case of Ipecacuanha (Cephaelis), Manilla Hemp (Musa textilis), Sandalwood (Santalum album), and certain other plants, which is essential, but as yet is unknown. Probably it is in the soil. Is it bacteria? I am told that attempts to extend the cultivation of Ginseng in the United States have proved unsuccessful. Ginseng has a perennial tuberous rootstock, not unlike a small Parsnip, annual stems a foot or so high with long-stalked palmatisect leaves, usually with five leaflets, hence the specific name. The flowers are in umbels, small, yellow, and they are succeeded by small Pea-like, bright red berries. The medicinal properties are in the roots. *W. W., Kew.* [*Bailey's Cyclopædia of American Horticulture*, art. "Ginseng," may be consulted with reference to the culture of the plant in the United States.]

Orchids and Leaf-mould.—That the roots of some Orchids revel in this material is abundantly illustrated just now in Messrs. Sanders' Nursery, at St. Albans. Pot after pot was examined, and in every case the root growth was remarkable and the foliage firm and deeply coloured. The roots were not so much "air-roots," such as one commonly sees, but "feeding-roots" evidently enjoying their quarters, profiting by the food supplied to them, and showing relatively little tendency to rise above the soil into the air. Many of them were distinctly furnished with root-hairs, such as one does not generally find on Orchid roots. These are very interesting facts which would repay critical examination and comparison.

The Monkholme Orchid Collection. — On Wednesday, April 1, the first day's sale of the fine collection of Orchids got together by the late Robert Tunstill, Esq., at Brierfield, Burnley, proved highly satisfactory, the total of the one day's sale being rather over £2,500. Mr. Harold Morris, of the firm of Messrs. Protheroe & Morris, was the auctioneer. Most of the principal buyers were present or represented, and good things fully maintained their values. The top price of the day was for Cypripedium × Priam, recently noted in the *Gardeners' Chronicle*, and which realised 200 guineas; next came the fine spotted Odontoglossum crispum "Alpha," a

rather small plant in flower, which went for 195 guineas; Odontoglossum grande aureum, 22 guineas; O. crispum, spotted var., 38 guineas; O. Uro-Skinneri album, 21 guineas; Cypripedium aureum Surprise, 85 guineas; C. Dora Crawshaw, 35 guineas; C. Winifred Hollington, 20 guineas; C. Mary Beatrice, 25 guineas; C. Leeanum Clinkaberryanum, 26 guineas; C. Maudiæ magnificum, 70 guineas; C. aureum Hyeanum, 30 guineas; C. J. H. Veitch, 31 guineas; C. bellatulum album, 18 guineas; C. Lawrenceanum Hyeanum, 46 guineas; and other favourite Cypripediums good prices. Cattleya Percivaliana alba realised 55 guineas; C. Trianæi Mrs. Edward Sondheim, 40 guineas; C. Gaskelliana alba, 28 guineas and 18 guineas; C. Mossiæ Wageneri, 45 guineas; C. gigas albens, 14, 16 and 17 guineas respectively. Lælia purpurata Annie Louise went for 23 guineas, and generally speaking all rare things realised prices according to size and quality. A noteworthy feature in the sale was the very small seedling Orchids in store pots, and they sold well, small lots of four or five pots of several kinds fetching 6 or 8 guineas a lot. It was expected that the second day's sale would be equally satisfactory, although a similar total to that of the first cannot be expected.

The Gardeners' Royal Benevolent Institution.—A sum of £67 15*s.* has just been sent from the Victorian Era Fund to the unsuccessful candidates at the last election, who had previously been subscribers to the Institution. A similar amount from the same fund will be sent to them on October 1 next.

Publications Received.—*The Natural History of Plants*, Kerner & Oliver, Parts 9 and 10. This extends as far as the article "Autogamy," and includes titlepage, preface, &c., for the first volume.—*The British Moss-Flora*, Part xxii., March: Containing Hypnaceæ VI., Pterygophyllaceæ, and Neckeraceæ I. (Published by the author, R. Braithwaite, M.D., 26, Endymion Rd., Brixton Hill.)

APPLE EDWARD VII.

The new Apple shown in fig. 90 was recommended an Award of Merit by the Royal Horticultural Society's Fruit Committee on March 24, when specimens were shown by Messrs. W. B. Rowe & Sons, Worcester. The variety is from a cross between Blenheim Orange and Golden Noble, and the fruits shown were a little past their best, but sufficiently good to show that the variety is a valuable late cooking Apple. Messrs. Rowe & Sons have informed us that this Apple is as good for dessert as for cooking purposes, and has a flavour similar to that of Blenheim Orange. The fruits are usually in the best condition for use in the middle of April, and Messrs. Rowe state that owing to the untoward season of 1902, the fruits produced last year were not so good as usual.

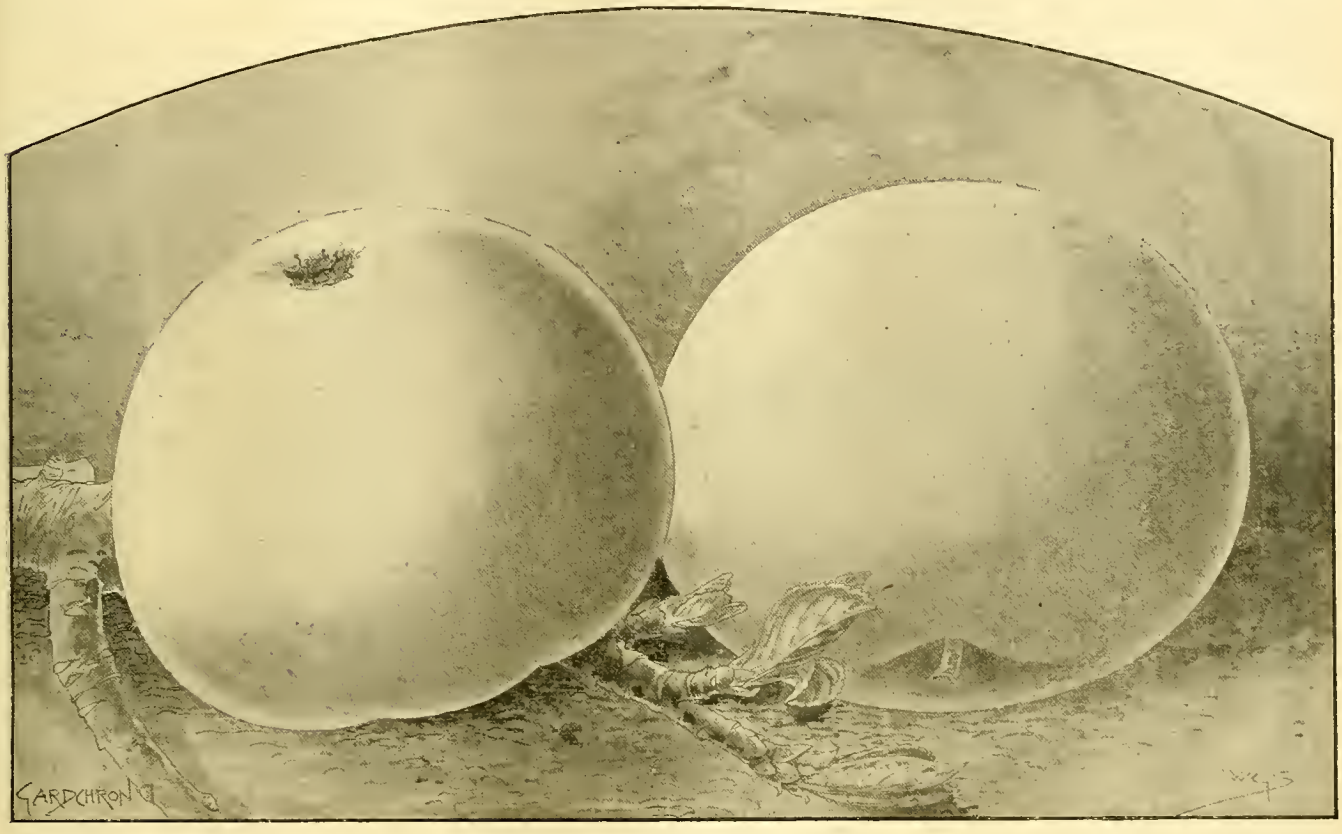

Fig. 90.—Apple Edward VII.

FLORISTS' FLOWERS.

DAHLIAS.

The season has arrived when a short recital of a simple method of Dahlia-culture for ordinary purposes may be not unacceptable to those who have to produce this popular flower in quantity. It is a method I have pursued for a very great number of years, and which not a few who have seen the results, and have comprehended the facility of the operation, have followed. We must first recognise that the Dahlia tuber is almost as hardy as the Potato, the fact of its surviving winters of less than ordinary severity being generally known. The young growths, when naturally produced, are somewhat more hardy than those of the Potato, as frosts sufficiently keen to cut down Potatos do not affect Dahlias injuriously.

Accepting these propositions as correct, the simplification of Dahlia-culture follows naturally. All the cultivator has to do is to divide his tubers, so that each bit has one or two buds attached; plant each of these in the position it is to fill, and the process is complete. I am, of course, aware that quantities of Dahlias are grown from old tubers; but that method is a laborious one, entailing the growth of the plants for a period under glass, hardening off, &c. The system I pursue with equally good results dispenses with these artificial aids, the tubers being planted just as Potatos are, and the shoots are produced like the latter in a natural manner. The time of planting varies from the beginning to the middle of April.

The question may be asked, What about the time these naturally-grown plants produce flowers? As a rule, quite three weeks before plants from cuttings gain strength to bloom. I remember some years ago leaving here in July for the south of England, our Dahlias then just beginning to flower, and finding none open in Kent. Now that Cactus varieties occupy such a prominent position in gardens, the above plan can be recommended as particularly well suited to that somewhat shy-flowering section, the old and glorious Juarezii, which cannot be depended on in the north from cuttings, succeeding splendidly from tubers.

There is yet another method of simplifying Dahlia culture, which permits of one dispensing altogether with stakes. I have no particular objection to having Dahlias tall if they are required for any reason to be so grown. Generally, however, dwarf plants are to be preferred, especially when arranged in beds, and this is quite easy to secure by pegging down the shoots when they have grown sufficiently large to do so. If stakes become necessary before the end of the season, short ones will be equally effective with the stoutest ordinary form of Dahlia stake in use. *R. P. Brotherston, Tynninghame.*

HOME CORRESPONDENCE.

POTATO TRIALS.—Whilst somewhere or other trials of Potato varieties, such as are conducted annually at Chiswick, or of manures applied to them, or of sets, or other things relating to Potatos, are being constantly noted, the question of variation in growth and crop production resulting from change of seed-tubers brought about by diverse soils or climatic conditions, as against similar sound tubers of similar varieties grown on the soil or near to that on which the trial is conducted, is seldom tested. It is specially desirable that some such trials should be conducted this year, because in the south the atmospheric conditions last season closely resembled those found in more northern districts, there being much more of moisture and a much lower temperature southwards than had been found for several summers previously. That fact leads to the assumption that growth and crop may this year be much more equalised in the case of sets of home growth, and those obtained from north and distant localities. When hot or dry seasons prevail, the tubers saved over the winter for planting, generally break comparatively weak. That has been my experience. This spring I find all seed-tubers saved from southern soils, whether sandy or porous, are breaking quite as strongly as do those which were grown in the north. That leads me to assume that any testing of home and distant grown tubers, side by side, should this season be specially interesting. Of course, all tubers should be stored and treated exactly alike, so that all be equally sprouted, be of similar size, be all planted at the same time, and under precisely similar conditions. The theory that a change of seed-tubers is good practice has long been held, and for several years has in practice found ample justification. Still there are some growers who are not assured, and think any variation in growth and crop rather due to good storing through the winter than to any other cause. *A. D.*

"HIPPEASTRUMS: LARGE FLOWERS AND MANY."—A short note under this heading appeared in the *Gardeners' Chronicle* last spring, describing a bulb of Hippeastrum which had produced three flower-spikes, and a total of twelve blooms, a sample bloom of which was before the editor. I have been curious to know what that same bulb would produce this season, and it has now three strong flower-stems, carrying respectively five flowers on the first one to open, the other two having four blooms each, making thirteen flowers on the one bulb. The blooms measure 10 inches across, and it makes a fine plant for a single vase. I have other bulbs of Hippeastrums carrying four and five blooms on each spike. The first flower-spike which appears generally carries five flowers. Our bulbs are potted annually, a practice which I think produces stronger spikes and flowers. *T. H. Slade, Poltimore Gardens, Exeter.*

SAUROMATUM GUTTATUM.—I had, a fortnight ago, a half-dozen plants of this Aroid in flower, cultivated without soil or water, and I am able to tell you that under those conditions the fœtid odour was something awful, especially when the flower first opened. I should have supposed it would be the same in Amorphophallus. The disagreeable smell may be necessary for the fertilisation of the plant in question, but it does not contribute to the pleasure of the cultivator. *J. K. B.*

THE HORTICULTURAL HALL.—It was hardly possible to move a yard at the Drill Hall on the 24th ult. without having to reply to the query, "How is the new Hall going on? When is it to be commenced? Have the Council got the money?" No wonder that, in conjunction with the severe squeezing by the crowd present, which had to be endured, the unfortunate being bombarded in this way became at times rather winded. Since that meeting, there has come the welcome announcement that a contract has been entered into to put in the foundations for the new Hall; that will set some enquiring minds at rest, and it is fair to hope now that, beyond the foundations, the Council is boldly facing the erection of the Hall and offices. If the opening of these buildings is to be the great event of the coming year, there is no time to spare, for one-fourth of this year has already elapsed, and it will be a cause of grave anxiety and disappointment if the Hall cannot be ready and opened in the spring of next year. Then it is still a matter for speculation as to how the money to pay for the Hall is coming in. Is it too much to ask that the Council should prominently post in the Drill Hall at each meeting, not only the full sum so far collected, but also the sums that come in during each fortnight. Not only would such publication be of the greatest interest to the Fellows of the Society, but it should do very much to stimulate subscribing by Fellows. It is folly and worse to be reserved and reticent in these matters, especially when everybody wants to know. What will be the nature of the crowding at the coming few spring meetings at the Drill Hall, it is difficult to say, but, if out of the many thousands of Fellows, but 10 per cent. more come in than were in on the 24th, then must there be a dead block. Is the Council justified in such a case in still further increasing its membership until the new Hall is erected. *A.*

BRITISH OAKS.—In your issue of March 21, Mr. J. Simpson wants to know "if I went over the trees (mentioned by Professor Fisher) when in full acorn." The trees were marked in the autumn of 1901, before the leaf was off, and when they were carrying a full crop of acorns, as was general everywhere that season. They were consequently easily distinguished, both by the leaves and by the fruit. He further states: "I (Mr. Simpson) think I know the trees at Chatsworth, they are either big or old . . . . Moreover the climate at Chatsworth is the wettest in the Midlands, according to statistics, and the soil is the usual heavy cold soil found on the millstone grit.' It is apparent that Mr. S. is mistaken about the trees, the soil, situation in which they grow, and the climate of the district. In the first place, the trees are neither big nor old, our big or old Oaks being confined to a very limited area of heavy soil overlying the Yoredale shales, while the soil in question, as all geologists know full well, is a light sandy soil, superimposed on the porous millstone grit. It would be most unusual to have the tops of our gritstone hills (from the altitude I gave, 750 to 900 feet, it will be seen that the wood stands on a hill of considerable elevation) covered with a heavy soil, which can only emanate from a source of clays or shales, and if such did at any previous period ever overtop our gritstone hills, it has been removed by denudation many ages ago; while the existing soil, having been derived from the gritstone which it overlies, is naturally of a light sandy character, and very thin indeed, as Mr. Simpson would have found by experience had he taken practical part in the planting we have just completed in a portion of the same wood. As to the climate at Chatsworth being the wettest in the Midlands, I fancy Mr. Simpson concludes that Chatsworth has the same conditions as Buxton; but although the two places are only 14 miles apart, their rainfall is very different, as will be seen by the ten years' rainfall given below:

RAINFALL AT DEVONSHIRE HOSPITAL, BUXTON.	Inches.	RAINFALL AT CHATSWORTH HOUSE.	Inches.
1892	51·58	1892	33·52
1893	42·21	1893	28·59
1894	50·27	1894	33·72
1895	43·33	1895	30·47
1896	51·94	1896	31·27
1897	53·23	1897	32·40
1898	44·35	1898	29·78
1899	45·33	1899	32·31
1900	56·73	1900	37·63
1901	53·30	1901	31·19
Total for 10 years ...	491·35	Total for 10 years ...	319·48

The above speaks for itself, and shows that the climate of Chatsworth is far from being the wettest in the Midlands, according to statistics, as Mr. Simpson would have your readers believe. The remainder of Mr. Simpson's letter I leave to Prof. Fisher to deal with, and have no intention of interfering further in the matter. *J. P. Robertson, Chatsworth, Chesterfield.*

KILLING MOLES AND RATS.—On p. 207 of the *Gardeners' Chronicle*, a correspondent "S. M. B." complains of being troubled with moles. Sandford's poison for moles, to be obtained through any chemist at 1s. per box with full directions for use, is the finest thing I ever found. I was troubled by moles two years ago, and saw this advertised, so I got some and tried it, with the result that a few days afterwards I found seven moles lying dead under one Gooseberry-bush, which I think will speak for the efficacy of the article. The same firm also supplies a good poison for rats. This poison seems to have a suffocating effect upon them, and the animals come to the surface for fresh air, and die at the same time. I always keep a trap down in any hard runs. *H. Kenten, gr., Norton Hall, Stratton-on-Fosse, near Bath.*

THE GRAPE-FRUIT, AND OTHER VARIETIES OF CITRUS.—This variety of Citrus appears to be imported now to some extent. In a Brighton fruiterer's shop I saw a basket full of them, and purchased one for sixpence. Externally it is of a pale lemon colour, and many specimens are slightly pyriform. It is 13 inches in circumference, with a diameter of 4 inches; its height when standing on its base is also 4 inches. It is the thinnest-skinned Pumelo I have ever seen—that is, supposing it belongs to the Pumelo group; the thickness, or rather thinness, of the skin is one-eighth to two-eighths of an inch, and therefore thinner than the skin of many Oranges. The one I bought had twelve so-called "quarters," three of which were small; it contained many large seeds, and its axis was solid. The seeds when cut were white, like those of Pumelos. The colour of the pulp is pale yellow, like that of a Lemon, and its flavour is sub-acid, and pleasant, with perhaps a *soupçon* of bitter. I think this Grape-fruit is very nice, eaten with sugar. In Jamaica it is largely grown for the American market. I have a suspicion that eating it after a full meal produced gastric comfort, and it may possibly have a sensation of digestive principle like that which the Pine-apple is said to possess. This may perhaps be the reason why the Americans, who are said to be great meat-eaters, are very fond of this fruit. As Jamaica seems favourable to the growth of a large Citrus with a thin skin, growers there would be wise if they tried to introduce into that island the inimitable and delicious red-fleshed Pumelo, of Bombay. Its skin is only ¼ to ½-inch thick; the colour of its pulp is uniformly that of raw beef; it is very juicy, and of a pleasant sub-acid flavour, and eaten with sugar it is delicious. It comes into the Bombay market about Christmas time. There can be no difficulty in obtaining this fine fruit in a box, for Pumelos will travel any distance without injury. The only difficulty will be in getting at the right thing; all other Pumelos that I know of, compared with this, are nowhere. It is about 6 or 7 inches in diameter; its numerous seeds would be of value, as the different varieties of Citrus usually come true from seed. Anyhow, there ought to be no difficulty in obtaining grafted plants of this red-pulped variety in the usual way. If crosses could be effected between this Pumelo and the thinner-skinned Grape-fruit, the future might witness some valuable novelties in this important genus. *E. Bonavia, M.D.*

THE OLDEST TREATISE ON THE CULTIVATION OF THE PANSY.—I observe that in the columns of the *Gardening World* a claim is set up that a work on the Pansy, written and published by Mr. Alexander Lister, of Rothesay, entitled *The Pansy, How and When to Cultivate It*, is "the first treatise ever published on the subject." No date is given as to the year of publication of this treatise; it probably first appeared in the early nineties, judging from internal evidence. The edition I have is perhaps a late one, and the original may have appeared a few years earlier. I think we must go back a number of years to find the date of the publication of the first treatise. In the October number of Harrison's *Floricultural Cabinet* for 1841, there is an extract from a paper from the pen of Mr. Thomson, of Iver, dealing with the "History of the Heartsease;" this extends over four pages, and at the end of it the Editor remarks: "The above are particulars by Mr. Thomson, of Iver, and are

given in a concise and sensible treatise on the Heartsease by him." It would appear that the treatise formed one of several comprehended under the heading of *The Flower Gardener's Library*. In the three first numbers of the *Florist and Garden Miscellany*, the first volume of which appeared in 1848, the late Mr. Charles Turner gave some lengthy directions for the treatment of the Pansy, both in pots and in beds; and I think these papers were published as a treatise, as I have an impression I have seen a copy of it at the Royal Nursery, Slough. A treatise on the Dahlia was also published by Mr. Turner about the same time. In an early work by George Glenny, entitled the *Flower Garden*, there is an article on the Pansy; but I am not sure if this was published by Glenny previously to the appearance in the *Annals of Horticulture* for 1846 of a treatise by him on the Pansy or Heartsease, in which he deals exhaustively with the flower. In Glenny's *Culture of Flowers and Plants*, 1861, he devoted several pages to the Pansy. About 1873, Mr. Andrew Irvine, Kyles of Bute Nursery, Tighnabruaich, published a treatise of twenty-eight pages, entitled *Hints on Pansy Culture*, which is probably considerably anterior to that by Mr. Lister; and there is, in addition, a small volume issued by Messrs. Dobbie & Co., Rothesay, entitled *Pansies, Violas, and Violets*, which is probably the latest in appearing. There may be other treatises extant. It would be interesting to know if that by Thomson is in existence. The late Sir Joseph Paxton issued some manuals—one, for instance, on the Dahlia; probably one on the Pansy was forthcoming. The pages of the *Florist*, the *Midland Florist*, *Gossip of the Garden*, and other florists' periodicals, of an earlier date than either of the foregoing—the *Horticultural Journal*, for instance, to which George Glenny contributed so many articles on florists' flowers—dealt largely with the Pansy and its development and cultivation. *R. D.*

ROYAL GARDENERS' ORPHAN FUND. — My note published in the *Gardeners' Chronicle* of Feb. 14, was to ask non-subscribers not to think, because twenty-four candidates were elected by resolution, that the funds were too plentiful. It was not intended to bring me private correspondence. To the few who have plenty of excuses, and do not contribute to this charity, I may say that we all know that some are unable to give, even a little. One writer thinks that each generation should keep its own poor (does he help?), and not invest money. But what charity could stand without invested funds? Surely donors may demand that their donations or legacies be invested. A brother Scot in the south, who thinks there is small chance of candidates in Scotland being elected, cannot be a subscriber, or he would know such an opinion to be unfounded. There are now thirteen children in Scotland deriving benefit from the funds, and we Scottish gardeners are sending about £6, and nurserymen and friends are sending £8, which makes just enough to support one child. The thirteen are together receiving £169 annually. Gardeners in England are subscribing enough for about thirteen children, and considering the number of gardeners there are in England, this is about equal to what Scotland is doing, as Scotland is only comparable to many English counties. The local secretaries to the fund collect enough annually for six children, but the annual reports do not show what is obtained by collecting-boxes, books, and cards. We find twenty children are kept by gardeners and local secretaries, and seventy children from invested funds and subscriptions from friends and nurserymen. To fellow-gardeners who may read these facts, and are not able to give even a little, I say write to the Secretary, Mr. Wynue, 30, Wellington Street, Covent Garden, London, W.C., asking for a collecting-box, book, or card, which suits best for their locality. I am often told that gardeners are as a class very intelligent men; let us hope soon to be able to say they are very liberal. Hundreds of gardeners are quite able to give 5s. annually. *J. Hamilton, Duns.*

TRANSVAAL ORCHIDS. — As an old Orchid cultivator, I read your interesting article on the above with much pleasure. Here are some extracts from a letter written in *Answers* for March 21:—"When Mr. Chamberlain quitted these shores on his South African mission, a usually well informed journal anxiously enquired where he could obtain his Orchid for the daily *boulonnière?*" "Later still, the startling information reached us from Durban, that 300 Orchids were stored in a freezing-room aboard the *Good Hope* for Mr. Chamberlain's use during his South African tour." "This was indeed a case of sending coals to Newcastle." "As a matter of fact, South Africa is in the happy position of being able to supply the Colonial Secretary without a dearth arising." "In Natal, the garden colony, where Mr. Chamberlain has already been, the various genera of Orchids are reckoned at forty-six, the Natalian species being the most interesting to a student as being peculiar to the soil, though found as far south as King William's Town." "In the Transvaal, Mr. Chamberlain found no difficulty in obtaining cut blooms, though little has hitherto been written of the Orchid in its native fastnesses in this Colony." "But it was on his arrival in the Cape Colony that his greatest delight was attained: here he saw the famous Disa grandiflora, the most beautiful of all South African Orchids." "The genera known as Dendrobium and Phalænopsis are also found in great variety in South Africa." This is news to me; how is it that our collectors have not imported them from that region? And if the Disa grandiflora is the most beautiful of South African Orchids, what shall we say of Cattleya, Oncidium, and Odontoglossum, which are not found there? I fancy the majority of Orchids found in that part of the world are merely botanical curiosities, and would not pay for carriage home. It would be interesting to know what the Colonial Secretary himself has to say about them. *J. Simcoe.*

CALANTHE VEITCHI. — I must apologise for taking up further space in your valuable paper concerning this species of Orchid, but as my name figures rather prominently in "W. C. R.'s" contribution, p. 188, I must crave indulgence for a brief reply. In the first place, it is very kind of "W. C. R." to take up the cudgel on behalf of Mr. Fulford, but I was not questioning the advice he gave as to placing the plants in a slightly lower temperature as soon as growth is finished, merely recording the treatment given them here; and though I do not shift the plants to cooler quarters, the night temperature is gradually reduced to 65° from early October until the middle of January; but as I said in my first note, the plants are removed to a dry house or pit with a night temperature varying from 55° to 60° when about half the flowers are expanded. As regards the mulch of cow-dung I recommended, which is put on as much to cover the exposed roots as to assist the plants, I have found no inconvenience when the plants are required for house decoration, as all the nutriment has been washed out of it long before the plants become fit for furnishing; and what gardener would neglect to cover the soil as well as the pots of all plants that have to be taken into the dwelling-house with moss or similar material? And even when staged in the conservatory, they are usually stood amongst Maidenhair Ferns, which hide the pots and as often as not the pseudobulbs as well. The best test would be for those concerned to send half-a-dozen flower-spikes to the Editor early in December, and have his impartial verdict, which I am quite willing to do. Large bulbs well ripened and kept in the temperature given above and free from drip do not decay at Bicton. *J. Mayne, Bicton.*

THE MIDLAND DAFFODIL SHOW.—I noticed by Saturday's *Gardeners' Chronicle* (March 28), that the Midland Daffodil Show is fixed for April 16 and 17 instead of April 23 and 24. If my Sir Watkin, of which I have a grand show at present, can be taken as a proof of general Daffodil forwardness, the Midland show might perhaps be better supplied with flowers had they fixed the date of the show for April 8 and 9, as I fancy many of the varieties will be past their best by the middle of the month. Some of course will be forthcoming from later situations; my Daffodils seem to have burst into flower so quickly. I do not know that I remember a winter so free from frost and snow, or one in which the weather had been so boisterous and rainy. The cry is now that we are having far too much rain, and people are anxious to have some fine weather to enable them to get their seed into the ground. I will not trouble you with either thermometer or barometer readings, as these give no indication of what the weather is going to be. The barometer is no sooner up than it is down, and no sooner down than it is up again with a bound, but resulting in no fine weather; and as a proof of the mildness of the late winter, I may give an instance of a Fuchsia Riccartoni in my grounds, now breaking into bud from last year's shoots, a circumstance I do not remember to have remarked before. This brings to my pleasant remembrance the fine bushes of F. Riccartoni and F. gracilis we used to see growing on the warm shores of the west of Scotland. *W. Miller, Coventry.*

CARNATION MRS. T. W. LAWSON.—The lady who informed Mr. Brooks that Carnation Mrs. T. W. Lawson was raised at Dumfries has been misinformed. The history of the flower was given in some detail at the time it was sold for so large a sum of money in America. It was then said that it was raised in the United States by a Scotsman; he was not, however, from Dumfries. I have seen this Carnation several times, but I do not think that it will meet in this country with the favour shown to it across the Atlantic. *S. Arnott, Carsethorn by Dumfries.*

Fig. 91.—TREE AND SHRUB LABEL OF THIN COPPER PLATE, FOR NURSERYMEN AND GARDENERS' USES.

NEW INVENTIONS.

THE "IDEAL" LABEL.

We have often given expression to the long-felt want of a suitable label, especially in the case of trees or other plants sent out to purchasers by nurserymen. The ordinary cardboard, and the old-fashioned parchment labels, are merely sources of vexation. Mr. Chandler, of the Devon Rosery, Torquay, now sends us a permanent label, which is a great improvement on anything we have seen. It is a narrow strip of copper, with an eyelet of lead, to which aluminium wires can be attached (see fig. 91), so as to fasten the label to the shrub or tree. On this label can be stamped in relief the name of the nurseryman and the name of the Rose or other plant. The nurseryman would probably keep a stock of these embossed labels, applicable to the trees most commonly asked for, or the name might be inscribed on the label with a blunt-pointed pencil or stick, as occasion demanded. This, of course, could be done by the purchaser. The cost works out at about ½d. to 1d. a label, or less when a quantity is taken.

BOOK NOTICE.

THE DAHLIA: its History and Cultivation (Macmillan & Co.)

THE names of the authors of this little treatise are too numerous to be placed in a head-line. We must insert them in the text as follows:—Richard Dean, Robert Fife, John Ballantyne, Stephen Jones, William Cuthbertson, and Leonard Barron, truly an array which should attract attention and inspire confidence. Here is the play bill—we beg pardon, the table of contents. Mr. W. Cuthbertson furnishes the introduction. Mr. Richard Dean acts as historian, Mr. Ballantyne discusses the botany of the Dahlia, Mr. Stephen Jones its propagation, and Mr. Robert Fife its cultivation. The "exhibition" of the Dahlia is entrusted to Mr. Jones; Mr. Leonard Barron tells us of the Dahlia in America. Mr. Cuthbertson acts as the prophet in dilating on the future of the flower. Besides these chapters, there are catalogues of varieties, analysis of varieties, and selections for special purposes. The whole occupies only 120 pages. To review it adequately would demand a large amount of space. We can only venture to dip into its pages here and there. To begin with, we are delighted to find that so keen a florist as Mr. Cuthbertson, considers that the generally prevalent idea that the botanist and the florist have little or nothing in common is old-fashioned, and has been given up. Of course, it has by intelligent botanists and by progressive florists. Co-operation, not antagonism, is the lesson which Darwin and the evolutionists have impressed upon us, and, to use Mr. Cuthberson's words, "he surely is best equipped for growing plants who best understands their structure."

The history of the Dahlia has been given more fully in our columns by Mr. Hemsley and others, and in the records of the Royal Horticultural Society, than it is in this book.

The botany of the Dahlia is also treated briefly, but clearly and accurately. The book would have acquired a greater value as a standard treatise if fuller reference had been made to the literature of the subject. What is the use of laborious and critical work being undertaken if it is not to be referred to by those who come after. Very useful chapters are those on the propagation and the cultivation of the Dahlia—needless to say, they are excellent in their way. For those who are not troubled with too much orthodoxy in these matters, we may recommend the practice of planting the tubers among the Rhododendrons. The effect in autumn among the evergreen leaves is admirable, and even for cutting purposes the Dahlias so grown are useful, provided the cutter threads his way carefully among the Rhododendrons, and avoids breaking these brittle-branched shrubs.

As to exhibiting the Dahlia, the writer adheres too exclusively to the stereotyped methods which, however necessary for purposes of comparison, accentuate the formality of the flower, and provoke the scoffs of the profane. Of late years, so marked an improvement has been manifested in the tasteful arrangement of these flowers, that it seems a pity that more attention to this branch of the subject has not been given in this section of the book before us.

A complete catalogue of the varieties offered for sale in 1902 by the leading growers of Great Britain is likely to be very useful, arranged as it is in the groups adopted by florists. If the "show Dahlias" offend the eye by their inelegance of form, they charm it by their variety and gradation of colour; whilst ample provision is now made to supply the requirements of those to whom the show Dahlias are more or less abhorrent, by the introduction of the Pompons and Tom Thumbs, the single varieties, and specially the "Cactus" forms, which are those most in vogue at the present time. The newly introduced "collerette" varieties are specially interesting to the botanist, who, in spite of their present uncouth form, sees in them the potency and promise of a new race, destined to become, in all probability, very attractive in future, if the caprice and whims of the public will allow. We are obliged to insert this qualification, as the public taste, which till lately ran with ample warrant in favour of the single varieties, has now decreed the dethronement of this, perhaps the most beautiful of all the sections. In turning over the pages of the book, we miss the mention of the race with flat, imbricating florets, which, when well developed, constitute one of the most beautiful of all the sections.

Mr. Leonard Barron's chapter on the Dahlia in America, which might at first be thought out of place, and of little interest on this side of the Atlantic, is in reality very much otherwise. It is very interesting, as showing the differences in the minds of the growers and fanciers, and in the plants themselves—differences brought about by the change of environment. They afford a lesson in catholicity and toleration which others besides florists of the old school would do well to take to heart.

The same lesson is enforced in a powerful way in the article on the Future of the Dahlia. That such an article should be written authoritatively about florists' flowers is, indeed, a most hopeful and most welcome sign. Were it for that alone, we should commend this unpretending but most useful little book.

MARKET GARDENING.

STOPPING AND TRANSPLANTING CHRYSANTHEMUMS.

CUTTINGS of Chrysanthemums inserted in boxes placed in a cool, close house, pit, or frame, and, treated as recommended in the *Gardeners' Chronicle* for January 17, should, if this has not already been done, have the shoots stopped as soon as they have pushed into growth. Remove the boxes to a position out-of-doors where they will be sheltered from cold winds, preparatory to transplanting the young plants. These should be lifted with some soil attached to the roots, and planted in the open towards the middle of April, in rows 2 feet apart and 1½ foot from plant to plant in the rows, making the soil firm about the roots in planting, and affording water (in the absence of rain) to settle the soil. The ground, which should be light rather than heavy, should be dressed with decayed manure, and ploughed some time before the plants are set out, deferring the work of harrowing till planting time arrives. Stop the young growths, say twice, after the plants have been transferred to their summer quarters, so as to secure five or six shoots on each plant. Should the central growth be much stronger than its neighbours, and consequently likely to abstract more than its due proportion of nutriment from the roots, remove it altogether. Should the weather be dry for a week or two after planting, repeated applications of water to the plants should be afforded until the roots have pushed into the soil, and are able to take care of themselves.

In cases in which the cultivator has only a limited stock of cuttings of special varieties which he is anxious to propagate largely, the boxes should be placed together on the floor of a forcing-house, in which a temperature of 65° to 70° is kept up at night. Under these favourable conditions, roots and new growths will form within the space of two or three weeks, thereby yielding a fresh batch of cuttings, which in their turn will furnish additional supplies of cuttings up to the end of the third or fourth week in March.

The earlier-rooted plants will have been transferred to a cooler structure after two successive lots of cuttings have been taken, in order to thicken and consolidate growth. Plants thus grown will require very little stopping after they are finally planted. They must be carefully hardened off. Dishudding the flowers to one on each shoot must be attended to promptly as soon as the embryo flower-buds are large enough to get hold of with the point of a sharp knife and the thumb, care being exercised in so doing not to injure the terminal bud left on each shoot to develop into large, remunerative blooms in due time. *H. W. Ward, Lime House, Rayleigh.*

GARDEN NOTES.

LIVERPOOL BOTANIC GARDENS.

ONE of the principal features in these gardens at the present time is the array of Hippeastrums. There are over 2,000 of these grown, and they are brought on in batches of between 200 and 300 at each time. There are upwards of 200 grouped together in one of the show houses; some of the flowers are rich crimson and blood-red, others are nearly white, or are striped, mottled, and blended. Two or three seem to stand out in prominence above all others, and these are of a deep cerise colour, perfect in form, breadth of petal, size, and substance. Many of the bulbs are carrying three scapes, and the majority have five flowers on each scape. This display is attracting thousands of the Liverpool citizens, and during fine weather a continuous stream of people wend their way in and around these gardens.

In the cool houses are many spring-flowering bulbs; and a plant of Rhododendron "Chevalier Felix de Sauvage," which stands boldly out from amongst Hyacinths, Tulips, &c. The front stage of one house is devoted to Cineraria stellata. In the same house Camellias are planted out in a bed, a C. reticulata being one mass of bloom. A fine specimen of Solandra grandiflora is flourishing in the warm house, this having several of its long and tubular-shaped flowers now open. Several Chorizemas are trained up the roof of the greenhouse, and these are now in full beauty, the racemes of flowers hanging gracefully in abundance. *J. S.*

LAW NOTES.

RATING OF MARKET GARDENS.

THERE have been many appeals recently at Wisbech by fruit-growers in the district against the assessments of fruit land. This has especially been the case with land planted with Strawberries and Raspberries. The Wisbech and District Fruit-growers' Association was formed, and several meetings have been held with regard to the matter. The result was, that the majority got satisfaction, but there were a few of the larger growers who still maintained the contention that land planted with Strawberries should not be assessed higher than if planted with Potatos, or any other crop. In consequence of this, one of the appeals is to be heard at the Norfolk Quarter Sessions.

On Thursday, on the agenda for the meeting of the Wisbech Board of Guardians, was the following item:—"To consent to the appearance of the Assessment Committee as respondents to an appeal to Quarter Sessions by Mr. T. E. Bowers (Upwell)." Mr. Cockett said it was well known that during the last few years they had had many complaints about the increased assessments, but now there were only nine or ten individuals not satisfied. They were unwilling to bear any additional assessment on Raspberries or Strawberries because in other unions they were not charged. He had letters from large fruit districts in Kent where they did not charge anything extra; also from Yarmouth and Southampton. Some of those who appealed had 100 acres thus planted, and then it was an important matter. The resolution to send the case to Quarter Sessions was carried by twenty-one votes to eight. Eight Guardians did not vote.

Seakale.—The extreme mildness of the season is shown in that natural-grown Seakale is quite a fortnight before its usual time in coming in, and the forced not being cleared off, the result is very low prices for both. We have Seakale selling in the London markets from 4s. to 10s. per dozen punnets, and of the latter very little changes hands, which means that it is being grown at a loss. Other productions show in low prices the character of the season. *Stephen Castle, March* 31.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

March 24.—*Present:* Dr. M. T. Masters, F.R.S. (in the Chair); and Messrs. Massee, Saunders, Duncan, Shea, Gordon, Holmes, Bidgood, Chapman, and Douglas; Drs. Cooke and Rendle; Revs. W. Wilks and G. Henslow (Hon. Sec.).

Orchid Seedlings. — Mr. Duncan inquired if the "Spring-tails" (Podura) were injurious, as the seedlings were injured just above the ground? Mr. Saunders observed that such was undoubtedly the case. Mr. Bidgood said that he had found a very weak solution of rectified spirit (⅛ to 1 per cent.) was effective applied two or three times a week to the growing plants.

Fruit Industry.—A communication was received from the Board of Agriculture asking for opinions upon a proposed legislation for the protection of the fruit industry in this country. It was referred to a sub-committee consisting of Messrs. Shea, Saunders, Massee, and Dr. M. T. Masters to report.

Mendel's Law.—Capt. Hurst sent an interesting description of Mr. Chapman's Orchids, showing how the Mendelian Law was exemplified by them. It will be published in the Society's *Journal* in full.

Ant destroyer.—Mr. Holmes directed attention to a very dangerous preparation of arsenic offered for sale without proper safeguards. The bottle shown contained about three-quarters of an ounce of arsenic, and fifteen fluid ounces of syrup, or enough to poison 150 adults. As it is recommended on the label that the preparation should be put on Vine-rods, &c., it would probably prove either fatal to bees or poison their honey, since these insects eagerly steal sugar or a sugary solution wherever they find it; and if placed on stones, to dogs, to say nothing of children, who, finding a sweet fluid in an ordinary bottle, might find it particularly attractive, the arsenic present being quite tasteless. The maker's name is not on the bottle. It must be a very profitable article to the manufacturers, as it costs less than 6*d.*, and sells for 3*s.* 6*d.* The word "poison" is not on a separate label, and might be easily overlooked. The Committee agreed with Mr. Holmes that such a dangerous preparation ought not to be freely obtainable by the public without proper restrictions as provided by the Pharmacy Act of 1868, especially as other effective insecticides, not poisonous to animals, are obtainable without difficulty.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

March 19.—On the occasion of the meeting on the above date, Messrs. J. Cypher & Sons, Cheltenham, staged a good group of Orchids, consisting of many choice forms of hybrid Dendrobiums. D. × Lutwycheanum was voted an Award of Merit, and a similar award went to D. nobile var. Heathi, the latter a fine handsome variety; D. nobile var. Purity was another form worthy of notice. A Bronze Medal was awarded for the group.

O. O. Whigley, Esq., Bury, had a bright group of good flowering plants, principally of Dendrobiums; a notable feature in this group, which was awarded a Silver Medal, was a large number of well-grown plants of Lælia Jongheana.

Mr. S. Allan, Sale, was given a Vote of Thanks for a small group of plants.

A. Warburton, Esq., Haslingden, exhibited a well flowered plant of Odontoglossum crispum "Victoria Regina," a good form which has previously been certificated by the Society. The flower is heavily blotched with reddish-brown spots. A Vote of Thanks.

Messrs. Charlesworth & Co., Bradford, had a very choice and valuable collection. The best plants in this group were × Brasso-Lælia purpurato-Digbyana, First-class Certificate; the colour of the flower was of a soft rose. Odontoglossum × Harryano-triumphans, received a similar award, and is a valuable addition to garden hybrids. Lælio-Cattleya × Myra, also received a First class Certificate. Awards of Merit were voted to Odontoglossum crispum var., Lælio-Cattlaya × luminosa var. aurifera, and Lælio-Cattleya × Dominiana. A Silver Medal for the group.

A. J. Keeling & Sons, Westgate Hill, Bradford, received an Award of Merit for Dendrobium × Ainsworthi var. amœna, a good form, with pure white sepals and petals. D. A. Woodhatch var. was also shown.

Dr. A. Hodgkinson, The Grange, Wilmslow, exhibited a nice hybrid of his own raising, viz., Lælio-Cattleya × "Noel," a cross between Cattleya Trianæ alba × Lælia harpophylla. In colour the flower is of a fine rich orange, and is, in size, intermediate. Award of Merit.

John Cowan & Co., Gateacre, received an Award of Merit for Dendrobium × Wiganiauum var. album, and a Botanical Certificate for Dendrobium Harveyanum; D. Wardianum var. ochroleucum, was also exhibited, and the previous award made to this lovely plant was confirmed.

Mr. John Robson, Altrincham, was voted an Award of Merit for Odontoglossum triumphans var. grandis, a fine richly coloured variety.

Mr. P. Weathers, Old Trafford, received an Award of Merit for a good form of Odontoglossum crispum.

Messrs. Hugh Low & Co., Enfield, sent Odontoglossum × tentaculatum.

Mr. W. Holmes, Timperley, exhibited a choice lot of cut flowers, consisting of Dendrobiums principally (Vote of Thanks). *P. W.*

ABERDEEN CHRYSANTHEMUM.

March 21.—A special general meeting of this Society was held in the Union Hall, Aberdeen, on the above date. There was a good attendance of members, Mr. W. Bisset, Chairman of the Society, presiding. The meeting considered a draft of a new constitution for the Society, which was confirmed. It was arranged that the annual exhibition of the Society should be held in the Music Hall Buildings, Aberdeen, on Nov. 20, 21 next, when, in addition to the usual attractions, there will be a challenge cup, presented by lady friends of the Society, for competition among the amateur Chrysanthemum growers. The usual vote of thanks to the chairman, on the motion of Mr. G. M. Simpson, brought a pleasant meeting to a close. *W. K.*

NATIONAL SWEET PEA.

The Committee of this Society met at the Hotel Windsor on the 27th ult. to make arrangements for the annual exhibition in July next, and select judges; Mr. Geo. Gordon presiding. The matters affecting the exhibition were mostly those of detail, but when the appointment of judges was reached, an unmistakable objection was shown to any person connected with the trade, whether principal or employé, being selected. *R. D.*

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

The subject for discussion at the meeting of the above Association on the 23rd ult. was "The Anemone and its Culture," and was introduced by Mr. D. Harris, gr., Mapledurham House. The paper was written in an excellent style, and gave the cultural details of the various varieties in a very clear and practical manner. Among the sorts dealt with were Anemone japonica, A. fulgens, A. coronaria, A. apennina, A. blanda, A. sylvestris, and the St. Brigid. The debate was sustained by Messrs. Powell, Fry, Wilson, Exler, Neve, Alexander, Burfitt, Lever, Cretchley, D. Dore, Kercher Cox, Sandwith, &c., and much valuable information was brought out with regard to this lovely flower.

BECKENHAM HORTICULTURAL.

"Mushroom Culture all the year round for Market Purposes" has been given in a course of three lectures by Mr. C. W. Gedney, who for a considerable period has been cultivating Mushrooms on an extensive scale in the open for market. One of the most interesting and important parts of the subject has been the making of spawn (practically demonstrated) direct from spores.

Beds spawned from spore bricks have given from 10 to 25 lbs. of Mushrooms per yard run. The first year Mr. Gedney lost £60 in Mushroom-growing, but the next year he cleared £317. Since then he has proved that 2 miles of Mushroom-beds on an acre of ground can be made to return £1,000 a year; and it was claimed that in regard to returns, no other crop can approach this figure, even when grown under glass. Considering that in Covent Garden Market alone £100,000 is annually paid for French Mushrooms, in every respect inferior to home-grown produce, there is plenty of opportunity for enterprise. By careful, honest packing, Mr. Gedney said he had obtained 1*s.* per lb., when other samples were selling at 4*d.*

Every detail in connection with the subject was explained, including the collection and preparation of the manure, the best time for making and spawning beds, hastening and retarding, gathering and marketing, &c. Other edible fungi were briefly mentioned. R. Murray-Hyslop, Esq., occupied the chair. *Mark Webster.*

ROYAL BOTANIC.

April 1.—The Spring Show of the Royal Botanic Society was held on Wednesday last, the date being rather more than a fortnight earlier than was the case last year. The exhibits were displayed in the long corridor in the Society's gardens at Regent's Park, and overflowed into the conservatory. The day was miserably wet, and the attendance extremely unsatisfactory. There were no competitive classes as commonly understood, but medals were awarded to the exhibits according to merit; and in the case of exhibits from nurserymen and trade growers, the award of a Gold Medal was accompanied by a sum of £3, a Silver Medal £2, and a Bronze Medal £1. If an exhibit shown by an amateur or professional gardener was awarded a Gold Medal the sum of money accompanying it was £2, or a Silver Medal £1, and a Bronze Medal 10*s.* Particulars of some of the Medals awarded were not obtainable when these notes were taken. The following were the principal exhibits:—

Messrs. W. Cutbush & Son, Highgate Nurseries, London, N., exhibited a group of forced shrubs, including a large number of species. Messrs. B. S. Williams & Son, Upper Holloway, London, N., a group of varieties of Rhododendron indicum, in flower; and a few forced shrubs and other plants (Large Silver Medal); also a group of Narcissus flowers, especially good being the varieties Gloria Mundi and Duke of Bedford (Silver Medal). Messrs. Frank Cant & Co., Braiswick Rose Gardens, Colchester, about ten dozen excellent blooms of Roses, amongst which were flowers of the variety Lady Roberts, and other new ones. Messrs. J. Carter & Co., 237 and 238, High Holborn, London, a large group of well-grown Cinerarias, of a very fine strain (Gold Medal). Messrs. Hugh Low & Co., Bush Hill Park Nurseries, London, N., a group of miscellaneous species of greenhouse flowering plants, and a group of forced Moutan Paeonies. Messrs. J. Hill & Son, Barrowfield Nurseries, Lower Edmonton, a large exhibit of Ferns in pots (New Gold Medal). Messrs. R. & G. Cuthbert, Southgate Nurseries, Middlesex, a group of forced Rhododendrons (Azaleas), and other flowering shrubs (Silver-gilt Medal). Messrs. W. Bull & Sons, New Plant Nursery, King's Road, Chelsea, a group of Palms, Cordylines, Codiæums, and other choice foliage plants (large Silver Medal). Mr. John Odell, Florist, Colham Green, Hillingdon, Uxbridge, a very large display of Cyclamens (Silver-gilt Medal). Mr. Thos. S. Ware, Ltd. (1902), Feltham, Middlesex, a group of hardy and alpine plants; also Narcissus flowers (Silver Medal). Messrs. Hogg & Robertson, The Bulb Farm, Rush, co. Dublin, a large display of flowers of Narcissus and Tulips of very fine quality (Gold Medal). Messrs. Barr & Sons, King Street, Covent Garden, London, W.C., had hardy alpine plants and a group of Narcissus flowers and Hyacinths in pots (Silver Medal). Mr. L. H. Calcutt, Fairholt Road, Stoke Newington, a table of bold and well executed floral designs (Silver-gilt Medal). Miss Annie Green, 25, Grove End, St. John's Wood, N.W., table decorations (Silver Medal). Mr. Jas. Williams, Oxford Road, Ealing, table decorations. Mr. John Russell, Haverstock Hill, London, N.W., stove and greenhouse plants; Mr. R. H. Bath, Ltd., The Floral Farms, Wisbech, a group of Narcissus flowers. Mr. R. Anker, miniature Cactaceous plants; and Mr. W. J. Caparne, Rohais, Guernsey, cut flowers of hybrid Irises.

There were few exhibits from amateurs, and the most important of these was a collection of Orchids from H. T. Pitt, Esq., Rosslyn, Stamford Hill, London (gr., Mr. Thurgood). His exhibit contained some very fine novelties indeed, including the strikingly blotched variety of Odontoglossum crispum, named Abner Hassel, shown at the last Drill Hall meeting of the Royal Horticultural Society, when the flowers were only partially expanded; Odontoglossum Adrianæ Cobbianum, the colour of which is exceedingly rich; and O. Wilkianum "Pitt's variety," one of the finest forms of this variable plant (New Gold Medal).

Miss Adams, South Villa, Regent's Park, N.W. (gr., Mr. Geo. Kelf), showed a collection of flowering and foliage plants (Silver Medal); and Campbell Newington, Esq., The Holme, Regent's Park (gr., Mr. Thos. Abbott), a collection of forced flowering bulbs.

Two Bronze Medals were awarded to floral exhibits shown by students at the Society's Practical Gardening School.

In the afternoon, a Botanical and Horticultural Laboratory was opened by Mr. Shepheard, Chairman of the Technical Education Board of the London County Council (see p. 216).

DROITWICH.

The Experimental Garden here was established January 14, 1896, and is two acres in area. The garden is within 400 yards of Droitwich Railway Station, and the many trains stopping at this station (both of the Midland and Great Western systems) make it very convenient to visitors with a few minutes to spare, as well as to others with more time at their disposal.

As the fruit trees increase in age and size they become more interesting, and a larger number of varieties become capable of bearing fruit, though climatic conditions may prevent actual production of fully-developed fruit. Vegetable crops are grown under equal conditions in all respects, except in regard to manuring; and the manurial experiments consist of growth with garden refuse only, mixed chemical manures only, stable manure only, stable manure and mixed chemical manure only, kainit only, nitrate of soda only, sulphate of ammonia only, and superphosphate of lime (mineral) only. To these manurial experiments will be added, during 1903, green manuring only. Experiments are also conducted with the fruit trees in regard to the application of lime and its non-application, pruning and non-pruning, the destruction of insect pests and their non-destruction; and propagation is carried out upon a limited scale by cuttings, budding and grafting.

The months of June, July, August, and September are the best for the general visitor to the garden, but the true gardener will find something of interest at all times. The numbers of visitors to the garden have been as follows:—1897, 991; 1898, 1,495; 1899, 1,809; 1900, 2,339; 1901, 2,496; 1902, 2,109. The largest number upon one day in 1902 was 78, on July 5. There were visitors upon 288 days in the year.

The Experimental Garden now contains:—78 varieties of Apples; 47 of Plums and 1 Damson; 35 of Pears; 12 of Gooseberries; 11 of Strawberries; 11 of Currants; 9 of Raspberries. Parsley-leaved Bramble (Rubus laciniatus), Japanese Wineberry (Rubus phœnicolasius), The Loganberry (hybrid between Raspberry and Blackberry), and Strawberry-Raspberry (Rubus palmatus).

The seventh annual report by Mr. Udale, from which the above remarks are condensed, contains an account of what is being done, and very interesting it is. Apples, as was general in 1902, were scarce, owing to May frosts. Those varieties which succeeded best under these trying conditions were Ecklinville, Lane's Prince Albert, Lord Grosvenor, Lord Suffield, Bramley's Seedling, and Mr. Gladstone. Among Pears which bore a crop were Doyenné du Comice, Durondeau, Fertility, Glou Morceaux, and Louise Bonne of Jersey. The Pershore Plum is praised under certain conditions. Three fourths of the Strawberry blossoms it is estimated were destroyed. Dr. Hogg, Keen's Seedling, and Sir Joseph Paxton yielded no fruit, and at Droitwich are very generally unproductive, a somewhat unusual experience. Sensation is the most productive, but is of indifferent flavour. Royal Sovereign, and Scarlet Queen are highly spoken of, as also are a white variety named Louis Gautier, as well as Vicomtesse Héricart du Thury, and The Countess.

As to Potatos, it is noted that the best crop was obtained where stable manure was supplemented by chemical manures (11 tons 13 cwt. per acre). Where no manure was used, the crop was only at the rate of 2 tons 14 cwt. per acre. Sulphate of ammonia gave the heaviest crop, then nitrate of soda, and kainit and superphosphate took the third position. Similar details are given for several other crops, so that some idea may thus be obtained of the value of these experiments, and of the results tabulated by Mr. Udale, whose report we may add is so suggestive that it may be recommended for the perusal of all gardeners.

ENQUIRY.

Damage Caused by Pheasants.—Lady C. begs to say that none of the suggested remedies have proved of any use in her experience, and would be glad if some correspondent would suggest some other means of remedying or preventing the injury.

ANSWERS TO CORRESPONDENTS.

*** Editor and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the Publisher; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the Editor. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

"A Good Year Posy:" *W. J. S. G.* We do not remember to have heard the term before.

Books: *E. S. J.*—We know of no work on purely greenhouse management suited to this country. The most suitable manual for you which treats on the garden generally, is *Villa Gardening*, by Ed. Hobday (London: Macmillan & Co., St. Martin's Street, W.C.).

Chrysanthemums Dead at the Top: *X. Y. Z.* The plants, so far as the tops are concerned, have been exposed to some deleterious substance, or they have been too heavily fumigated or vaporised. We are inclined to attribute the loss to sulphur fumes. The roots and part of the stem below ground are unhurt.

Cymbidium Lowianum Flowers Failing: *H. B. S.* The buds of this and some other Orchids, on spikes sent up in early winter, often fail in the manner shown by the specimens you send. The spikes are very slowly developed, and the buds are too long in forming. When the development is extended over so long a period, any check, such as being allowed to get too dry for a short time, or any other ordinary cause, together with the lack of sunlight necessary to the healthy expansion of the flowers, will give the result shown in your case.

English Plant Names: *Ignoramus.* We cannot discover in Britten and Holland's *A Dictionary of English Plant Names* mention of "Bellstick." "Star Flower" is a name applied to several plants, viz., to Borrago officinalis, in Devonshire; to various species of Stellaria in north Lincolnshire and east Sussex; and Ornithogalum umbellatum in Bucks.

Flowers, Fruits, Plants, &c., for Sale: *F. J. M.* The change of occupation should be of service to you in the matter of health, but before you commence business we would strongly recommend you to enter several market establishments for two years at the least, so as to gain knowledge of the most approved methods of cultivation. You will find it to your advantage to take up a few subjects instead of many. We may mention a few that pay well just now, Palms, Ferns, zonal Pelargoniums, Chrysanthemums; Orchids, such as Odontoglossum crispum, Cœlogynes, Cattleyas, Lælias, especially white flowered species and varieties; Cypripediums, and Masdevallias; Roses in pots and for cut blooms, Eucharis, Genistas, and Asparagus of scandent habit. There are many other kinds of plants that find a ready sale in their season, or when forced. Among fruits there are Grapes, Figs, Melons, Peaches, and Nectarines; if early in the season, Strawberries in pots.

Fuel for Gardener's Use: *E. Constant Reader.* Where the gardener resides on the place it is customary to allow coals, peat, or wood, whichever fuel is commonly burnt. We would advise you, coals being cheap in your district, not to throw up the situation. Perhaps you could obtain additional money from your employer in lieu of coals.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Countryman.* 1, Jasminum revolutum; 2, Schizanthus candidus; 3, Streptosolen Jamesoni.—*Riley.* 1, Dendrobium Pierardi; 2, Aloe verrucosa; 3, Adiantum capillus-veneris, Japanese variety; 4, Adiantum capillus variety; 5, Adiantum formosum; 6, Selaginella viticulosa.—*C. H.* 1, Hemlock Spruce, Tsuga canadensis; 2, Cupressus Lawsoniana; 3, Pseudotsuga Douglasii; 4, Cupressus nootkaensis.—*W. R.* 1, Cupressus Lawsoniana; 2, C. Lawsoniana, variety; 3, C. Lawsoniana; 4, Juniperus rigida; 5, Cupressus Lawsoniana var.; 6, Thuya gigantea var. It is very difficult to name small pieces of Conifers. We make the best guess we can.

Peas: *C. S.* The work of Bruchus granarius. Such slightly attacked Peas are said to be those where the grub perished almost at once, owing to unfavourable conditions for development. *G.M.*

Poinsettias (Euphorbia) pulcherrima and Melons: *T. H.* We cannot spare the space necessary to afford you all the information you would require in reference to the cultivation of Poinsettias and Melons. You must either consult a manual on gardening, or study our Calendarial articles for the entire year. Melons may be grown quite well on hotbeds made up of tree-leaves and stable-dung.

Potato Northern Star: *O. E. R.*—We have not seen this variety growing, and know nothing more about it than that which we have read in the raiser's list for 1902, of new varieties. Here it is stated to be an ideal Potato, of fine shape and quality, and the most disease resisting and weather defying variety ever known. It ought to be good if the price asked for it, viz., 15s. per lb., be a criterion. It was shown at the Smithfield Club show, 1902, and is mentioned in our report of the same. See issue for Dec. 13, p. 446. It is a white round.

Rats in a New Building: *S. F. & Co.* Catch a rat, smear it with paraffin, and turn it loose in the runs. Another method is, to bait sundry box-traps with oatmeal for a fortnight, and then set the trap so as to catch any rats that enter it. This will answer so long as the animals are unsuspicious. Rats may be poisoned with strychnia; grain soaked in arsenicated water, and phosphorous paste; but this method is not to be recommended, the animals dying in the building causing a most offensive nuisance, and the substances being extremely poisonous.

Securing Flowers in a Table Basket: *A. N.* Line the baskets with waterproof-paper, or a light description of American oilcloth, and on this place as much clean wet sand as will answer the purpose, hiding sand and cloth with fresh green moss, or Selaginella denticulata. Another method is to stick the ends of the flower-stalks into small roots, as Potatos, Beet, Turnips, or Parsnips, cut of a shape that will enable them to stand steady.

Tulips: *H. S.* There is nothing in the Tulips themselves to explain the want of success. If the cultivation afforded the plants has been what it should have been, the presumption is that the bulbs were not fully developed and matured previous to forcing.

Varieties of Grape Vines: *J. T.*—The varieties of which mention was made, are well suited for starting in the month of February, and all are fit for exhibition purposes excepting the Frontignans, which although well-flavoured, would be considered of too small a size in bunch and berry.

Vines: *J. D.* The disease is that known as "Browning." See illustration in *Gardeners' Chronicle*, August 19, 1893, p. 217.

Winter Supply of Vegetables: *P. T.* Certainly, the gardener who had charge of the garden previous to last September would be responsible; but in no case could much produce be obtained from a lean-to house and four cold frames.

Communications Received.—Prof. Fisher.—S. C.—R.—F. Turner, Sydney.—J. E P.—Messrs. Sander.—M. Buysmann.—Editor *North British Agriculturist.*—A. Chandler.—W. Carruthers.—M. S.—E. B.—W. M.—Countess C.—Dr. Grabham, Madeira.—F. T.—W. F.—S. W. M.—E F. N.—R. T. Jamaica.—F. W. B.—Maj.-Gen. Lucie-Smith.—J. J. W.—C. E. S.—S C.—E. J.—W. D.—F. W. M.—F. H. A. (next week).—G. B. M. R.—Weekly Subscriber (next week).—J. A. (next week).—De Graaff Bros., Ltd., Leyden.—W. W. P., W. P. T., Jamaica.—W. K.—Expert.—O. C.—G. E.—G. W.—R. P. B.—J. G. W.—W. F. O.—Manager.—E. W., Penrose.—W. W.—W. A. C.—G. E.—F. A. Sp.—F. J. F. (next week).—J. H. C. (next week).

View in the Grounds, Belvoir Castle, Grantham.

THE
Gardeners' Chronicle

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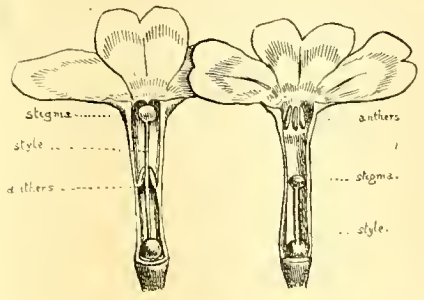
THE PRIMROSE.

IT might well be asked what fresh or interesting quality or characteristic can anyone have to point out about so common and so well recognised a flower as the Primrose. I do not pretend to point out any fresh quality or characteristic in the flower, but only to call attention to the peculiar characteristics which it has always possessed. These characteristics are very frequently quite overlooked by those who are perfectly familiar with the flowers themselves. I draw attention to these flowers at the present time particularly, as they are in the month of April in their fullest bloom, and are to be found on the hedge-banks or in the woods of most country districts.

The peculiarity of the Primrose consists chiefly in being what is called by botanists a "heterostyled" flower—that is a flower in which the styles are of different length in different flowers, and the stigmas—which are the termination of the styles—changing places relatively to the anthers on those flowers.

In some flowers the stigmas stand at, or near to, the top of the corolla tube; in other flowers the stigmas are half-way down the tube. In those flowers when the stigmas are at, or near to, the mouth of the tube, the anthers are half-way down the tube. On the other hand, when the stigmas are half-way down the tube the anthers are at the mouth of the tube. Thus, the relative position of the stigmas and anthers is reversed in the different flowers.

This "heterostylism" is shown in the accompanying diagram:—



The Primrose, in consequence of this heterostylism is called a dimorphic flower, i.e., a flower of two forms. The flowers which have the stigma at the mouth of the corolla are of the "long-styled" form, and are commonly called "pin-eyed;" and those flowers which have the stigma half-way down the tube, and the anthers at the mouth, are the "short-styled" form, and are commonly called "thrum-eyed."

This dimorphic condition is found almost universally in all flowers belonging to the Primrose tribe—the order of the Primulaceæ. It is consequently found in the Cowslip; in the Primulas generally, as the garden Auriculas and the Polyanthuses.

These different forms grow on different roots. On one root all the stigmas of the flowers will be of the long-styled form; on another root all will be of the short-styled form. There is never any difficulty in deciding to which form the flower belongs; the relative position of the anthers to the stigma indicates it at once. No case has hitherto been recorded in the Primrose of the two forms being found on the same root. On one member of the order—Primula elatior, such an anomaly as the two forms on the same root has been found in Germany. It would be interesting if the two forms could be found on the same root of the Primrose (Primula vulgaris).

These two different forms will be found growing side by side, and intermixed in closely equal proportions. In one year I gathered from separate roots, taking one flower from each root, and taking them as they came, 2,424 flowers: of these, 1,265 were long-styled and 1,159 short-styled; so that, out of 2,424 flowers, there was only a difference of 106. This doubtlessly will slightly vary with different gatherers, so that sometimes one set would prevail and sometimes another, but still the variation would always be very inconsiderable. This is a very remarkable feature in the flowers. Nor, so far as my experience goes, does the locality, whether hedge-side or wood, in which they grow make the slightest difference in their relative proportion. Both forms, too, appear in flower at the same time, neither being earlier nor later than the other; a slight precedence of one form in flower may occur in one place, and the opposite variation in another—neither position, nor locality, nor season, seems in any way to affect it. These facts, together with their being perfectly productive when pollinated either from their own flower or from the other form, indicate that the nature of the two forms is similar, and that they are merely, though persistent, varieties.

It is not my purpose to enter on the abstruse subject of the origin of this condition in the flowers. On the condition itself, however, Darwin propounded several theories which, in my opinion, cannot be substantiated by the facts connected with the flowers. The two chief theories which he propounded about them were that "the flowers had been rendered heterostyled to ensure cross-fertilisation," and that "for the full fertility of the flowers the pollen from the anthers of the short-styled form must be transferred to the stigma of the long-styled form; and *vice versâ*, the pollen of the long-styled form must be transferred to the stigma of the short-style." Darwin was led to these opinions by his very faulty method of experimenting with the flowers when covered with a close-meshed net.

The relation of the flowers is well worth investigation by anyone living in the country, and in the least interested in testing the validity of the theories which have emanated from such an authority and experimentalist as Darwin. His opinions on flowers, at least, as deduced from experiments, are wont to be accepted as final, and as beyond the pale of discussion. Actual observation in the fields gives no support to, but rather distinctly contradicts the above suppositions.

Let us first take the case of the short-styled Primrose. In this form the anthers are at the mouth of the corolla. On examination, it will be seen, when the anthers are mature and burst, that the anthers curve inwardly toward the centre of the corolla-tube, and with their triangular apices form in the short-styled flower, in nearly every case, an almost perfectly closed roof over the tube of the corolla, so that the corolla below is a closed box with its contained stigma within. This is a most noticeable feature in the short-styled Primrose when the pollen is mature. It would, consequently, be most exceptional for any foreign pollen to pass from the outside into the corolla of the short-styled. The anthers open on their inner and under surface into the corolla-tube, and the pollen falls from them on to the stigma immediately below.

Nature would seem to be acting in wanton waywardness to trap the corolla-tube with a close covering of anthers, with their hard backs facing outside; to place these anthers directly overhanging the stigmas; to arrange that the anthers should burst inwardly; and yet that with all these arrangements for self-fertilisation, other pollen for the full fertilisation of the stigma below should have to come from another flower, and from another root; that it should have to pass the block of its own stigma; to travel to, and to pass through the covering of the close-trapped box formed by the short-styled anthers when the pollen and stigma are mature, before it could ever reach the stigma of the short-styled pistil at all. Nature would obviously be inconsistent with herself, if, after framing such an elaborate set of arrangements favouring self-fertilisation, cross-fertilisation were in this case, according

to Darwin's theory, absolutely necessary for her to fulfil her ordinary law of full and perfect fertility. Nature is scarcely open to the charge of being guilty in her natural course of such fantastic contrariness.

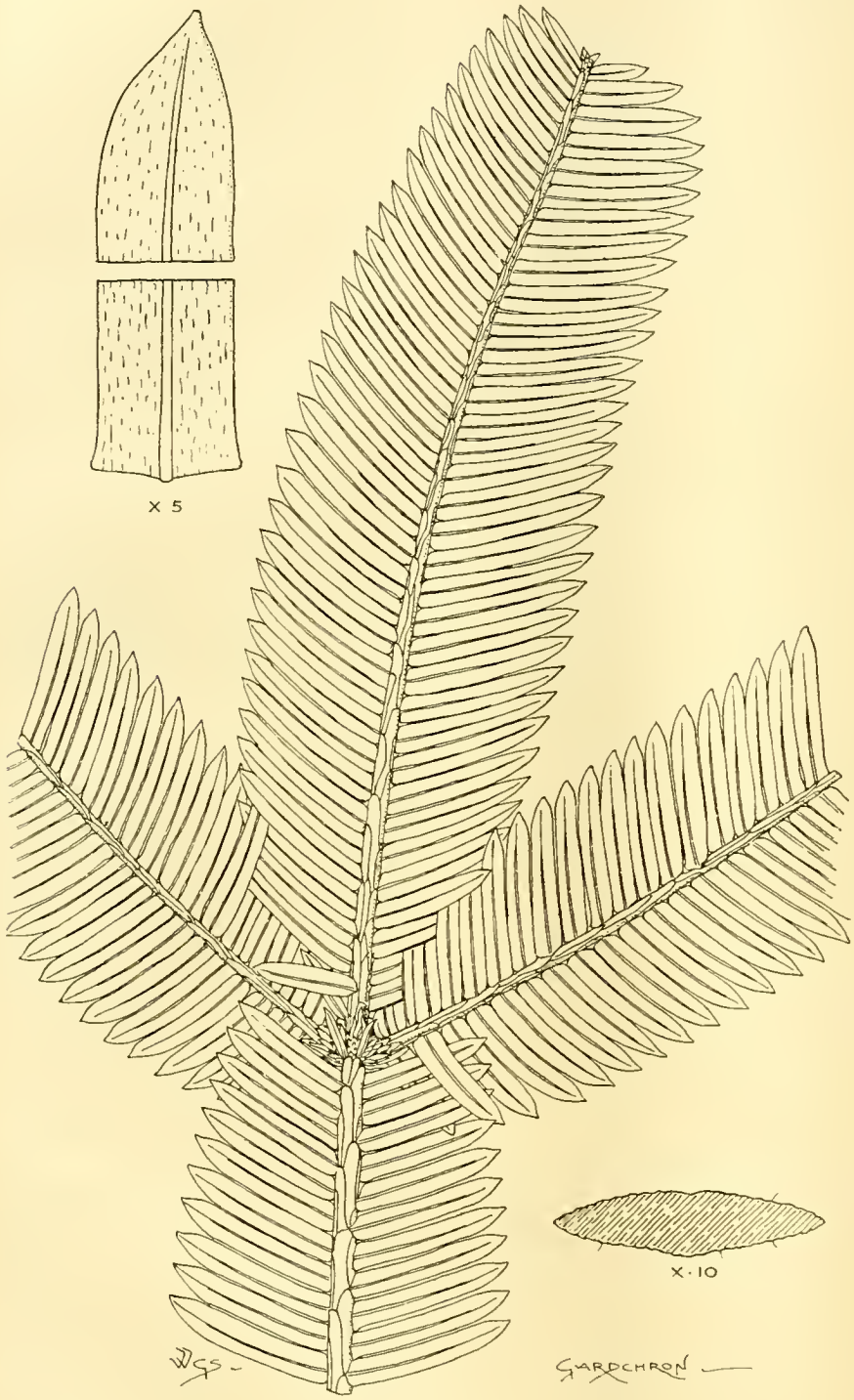


FIG. 93.—CEPHALOTAXUS OLIVERI: HARDY CHINESE EVERGREEN. (SEE P. 227.)

It is quite evident from the structure of the flower, that any conveyance by the wind of the pollen of the long-styled to the stigma of the short-styled would be most improbable. The only means consequently by which such transference could be effected would be by insects, with a long tongue or proboscis, when passing from one form to the other form in their searching for honey. But visits of such insects to the flowers are most exceptional. This can be proved by any observer who will take the trouble to observe the wild flowers. I very carefully observed the flowers during two successive years, and during two whole seasons, and I only saw four long-tongued insects, each on a single occasion only, visiting the flowers. One of these was a species of bee, Anthophera pilipes; two were butterflies, the common Cabbage and Brimstone butterflies; and one a long-tongued fly, the Bombylius discolor. These were all the long-tongued insects which I saw visiting the flowers. Though I examined tens of thousands, I might say millions of Primroses, I have only once, in a subsequent year, seen the Primrose visited by a humble bee, Bombus lapidarius.

The rarity of visits by humble bees to the Primrose arises from the length of the corolla-tube, which exceeds in length the tongue of the ordinary female humble bee. Humble bees are also, whilst the Primrose is in bloom, comparatively rare, as only those female bees which have survived the winter are then upon the wing. The Anthophora, from its size and appearance, is often mistaken for a humble bee; it is a solitary, and not a social bee, and is consequently everywhere comparatively rare. Darwin himself allows the very exceptional rarity of the flowers being visited by the humble bees, and "I speak," he says, "after many years of observation." Hence, for the cross-fertilisation of the flowers, he was driven to suppose that they were visited at night by moths, saying, "Hence the fertilisation of the Primrose must depend almost exclusively on moths." But for this opinion he had no evidence whatever to give. Nor is it probable that the flowers would be visited by moths at night, as none of their congeners are seen to visit them by day. Moreover, at the season when Primroses are in bloom—from the middle of March to the second week in May—night-flying moths are infinitely scarce, whilst the Primroses themselves are infinitely numerous. There is consequently the strongest possible evidence that any cross-fertilisation of the flowers would be most exceptional.

It is also to be noted that even if bees visited the flowers, it would only be very occasionally indeed that any pollen would be carried on their tongue. Such an insect might make a hundred visits or more without conveying any, as the tongue after every visit is withdrawn into its sheath, and so would be cleared of pollen where it would touch the short-styled stigma.

There is a very tiny insect called thrips, which in some localities infest the flowers; and in other localities, more or less, are found within the flowers. It is so minute an insect that the shank of the thinnest pin is thick in comparison to it, and so small that it is scarcely much more than noticeable to the naked eye. This insect would only in a general way contribute to the self-fertilisation of the flowers. It has wings which can be seen under a small pocket magnifier, and it can always be identified, as the wings are fringed round with slender hairs projecting from their margin. It does not usually fly, but executes small jumps; if it is tested upon the hand or on a leaf, it cannot be induced to use its wings. This habit would necessarily confine it, as a rule, to a single root, and so to a single form of Primrose. It would debar it, except on the rarest occasions, from being an agent in any cross-fertilisation. It feeds chiefly on the pollen, and so, when feeding on the pollen of the short-styled flower, some of the disturbed grains would assuredly be landed on the stigma below.

The usual position, too, of the pollen on the flat surface of the stigma is of itself an indication that it falls from the anthers above. This can be seen by anyone who will carefully open the flower when the pollen is shed. If deposited by the proboscis of an insect, it would be attached to the side of the stigma. It may be concluded from all the circumstantial evidence given above, that the short-styled Primrose is almost unexceptionally purely self-fertilised.

The evidence for the self-fertilisation of the long-styled form cannot be equally absolutely substantiated, as its stigma is exposed to the air, and the anthers of the short-styled form are also outside the corolla. Consequently, though

this form as the short-styled is most rarely, as we have seen, visited by insects with a long proboscis, and so its flowers cannot in its fertilisation be influenced by their means, yet the wind might convey pollen from the exposed short-styled anthers to the exposed long-styled stigma. Against such a supposition is the fact that when pollen is deposited upon its stigma, it is usually (always, so far as our observation goes) found on the bottom and lower half of the stigma, showing that the pollen comes from below, from its own anthers within the tube, and not from without; the wind, by buffeting and bending the flowers, effecting such depositien of the pollen. Still, even if these long-styled flowers were subject to some slight cross-fertilisation, as the produce of seeds in the long-style is, on Darwin's testimony, inferior in its average to that of what might be called the absolutely uncrossed short-styled Primrose, Darwin's theory that "one form of Primrose must unite with the other form in order to produce full fertility," is disproved by the occasionally-possibly-crossed long-styled form remaining inferior in productiveness to the uncrossed short-styled one.

The Primrose also refutes Darwin's general statement about such heterostyled flowers, that "every known heterostyled plant depends on insects for fertilisation and not on the wind."

Darwin, as we said above, was led to his conclusions chiefly by his artificial experiments under a close-meshed net. Nor has any artificial method yet been devised without minimising or partially intercepting some of Nature's agencies, as the sun, wind, or dew. "It would seem," Kerner says, "that whatever care be exercised, absolute reliance cannot be placed on the result of experiments, especially when it is a negative one." This opinion H. Müller allows, and the younger Treviranus affirms. Without in any way on our part disparaging artificial observation-experiment, I yet repudiate the oft-repeated assumption that a careful observer in the fields, who is also familiarly acquainted with the Hymenoptera aculeata, or Bee family, needs to substantiate his observations by experiments. On the other hand, I hold that all results obtained artificially need to be tested by actual observations in the fields. There, and not in the laboratory of the experimentalist, Nature presides, and there she holds her highest and final Court of Appeal.

The results of careful observation and investigation in the fields, our ablest experimentalists welcome (*Times*, July 11, 1902) as contributing to their own chief purpose—the discerning of natural agencies and processes in the floral kingdom; their chief aim being the establishment of the truth.

The Primrose presents (from its peculiar formation) to any intelligent observer during the next few weeks, unlimited opportunities for examining whether Darwin's opinions about the flowers are not, with possibly some exceptional instances, as pointed out above, quite unsupported by the facts connected with the flowers as observed in the fields. *A Field Naturalist, M.A., Camb.*

CHINESE CONIFERS.

Cephalotaxus Oliveri.*—The species we illustrate (fig. 93, p. 226), was originally confounded with C. Griffithi, from Assam, but comparison with a fuller suite of specimens shows that the Chinese plant is distinct in its leaves, truncated at the base, abruptly mucronulate at the apex, and in other characters. Our illustration is taken from plants collected by Mr. E. H. Wilson in Hupeh, when collecting for Messrs. Veitch & Sons of Chelsea. Young plants are now in cultivation at Combe Wood as well as at Kew. The shrub is noticeable for the regularly two-ranked manner in which the leaves are disposed, like the teeth of a comb, in close approximation to each other. The branches are glabrous, wrinkled in the dry state, and of a yellowish-green colour. The sessile distichous leaves are linear-oblong, apiculate, arcuate, about 25 mill. (1 inch) by 4 mill. in breadth, of leathery consistence, pale green and wrinkled on the upper surface, and with two rather broad white bands of stomata, one on each side of the midrib, between it and the green margins.

By Bentham & Hooker the genus was placed among the Taxodineæ. It is clear, however, that a nearer affinity is with Torreya and Ginkgo among the Salisburineæ and with the Cycadaceæ (see Masters in the *Journal of the Linnean Society*, vol. xxx. (1892), p. 4).

The species of this genus, as seen in cultivation, are hardy evergreen shrubs, allied to the Yews, but with foliage of a less deep green colour, with the male flowers arranged in stalked, globose clusters, and the female flowers (borne on separate plants) ripening into a drupe-like seed, like an Olive, or rarely sub-globose like a Cherry.

The species are natives of the Eastern Himalayas, Japan, and China. All the Japanese and Chinese species are hardy at Kew, but it is possible that in some of the northern counties they might suffer from frost. Their dense, bushy, and evergreen foliage render them desirable inmates of the garden.

Whilst in most cases the leaves on the spreading branches of Cephalotaxus are eventually so twisted at the base as to become two-ranked and in the same horizontal plane, yet in some instances they retain their primordial scattered position on the erect shoots, from which they diverge on all sides.

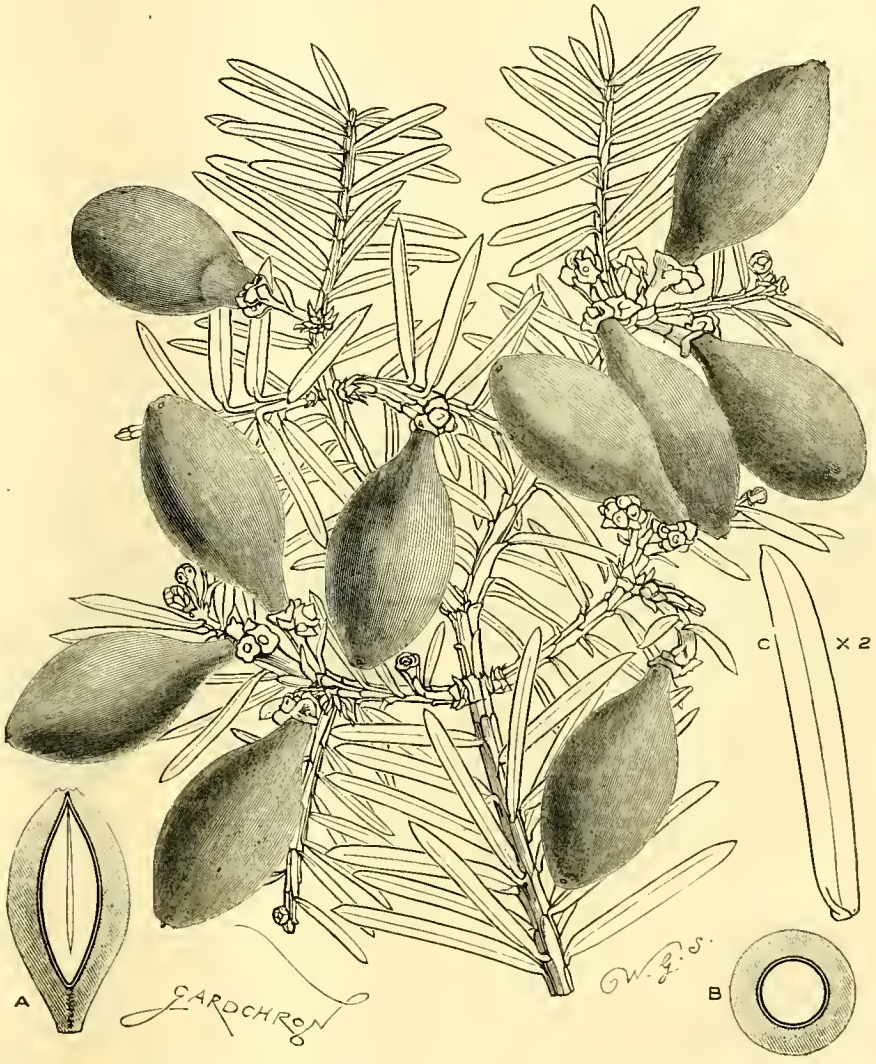


Fig. 94.—Cephalotaxus drupacea: A., B., sections of seeds; C., leaf.

The fastigiate form of C. pedunculata is common in gardens, and has the habit of the Irish Yew. Before its real character was ascertained, it was named Taxus japonica, Podocarpus koraiana, P. Makoyi, and Cephalotaxus Buergeri, under one of which names it is still met with in gardens.

The following arrangement may facilitate the recognition of the species by their leaves, but is, of course, not invariably applicable, and it is probable that drupacea and pedunculata may be forms of one species. Other and more important differences are observable in the seeds so far as they are known.

Leaves dark green, 5—7 cent. long, gradually tapering at both ends ...	Fortunei (China). *Bot. Mag.*, t. 4499.

* *Cephalotaxus Oliveri*.—Mast. in *Bull. Herb. Boissier*, vi., p. 270, and in *Journ. Linn. Soc.*, vol. xxvi., p. 545 = C. Griffithi; Oliver in *Hook. Ic. Pl.*, t. 1933; and Hook. f. *Flor. Brit. Ind.*, v. 468.

Hupeh (Henry, 7479, 7832, 7843!); Mount Omei (Faber, 983!); Szechnen (Wilson 72!).

Leaves bright green, 1—5 cent. long, tapering at the base:—

- leaves 1—3 cent., ovate-mucronate at the tips ... — DRUPACEA (China-Japan). *Gard. Chron.*, Dec. 14, 1895 (fig. 94).
- leaves 3—4 cent., tapering gradually to a fine point — PEDUNCULATA (China-Japan). *Gard. Chron.*, Jan. 26, 1884, p. 113 (fig. 95).

rounded at the base, apex gradually tapering:—

- leaves linear falcate, 4 cent., green on the under surface ... ... — MANNI (Burmah).

leaves white on the lower surface.

- leaves 6 cent. long, 2—3 mill. broad, acutely pointed ... — GRIFFITHI (Assam).

truncate at the base:—

- leaves 2—3 cent., apex ovate, abruptly pointed — OLIVERI (China) (fig. 93).

C. Manni is not in cultivation, so far as I know. *Maxwell T. Masters.*

ORCHID NOTES AND GLEANINGS.

BLETIA SHEPHERDI AND B. VERECUNDA.

Flowers of these two beautiful and very dissimilar species of a genus not now so often seen in gardens as formerly, are sent to us by Mr. J. Cypher, Exotic Nursery, Cheltenham. Bletia Shepherdi is perhaps the handsomest of the genus, its long graceful spikes bearing numerous showy Tyrian-purple flowers, whose broad, crimped labellums are furnished with several white and yellow ridges. B. verecunda has more slender spikes of light rose coloured flowers, the constricted base of the middle lobe of the lip being entirely occupied by yellow wavy-edged raised lines; the apex is of a bright rose tint. Both are of that class of terrestrial Orchid, the most familiar example of which is the Japanese B. hyacinthina, which is hardy in favoured localities. The two under notice thrive in a warm greenhouse if potted in a sustaining compost of half fibrous loam and the other half peat and sand.

Dendrobiums at Woodhatch Lodge, Reigate.

Mr. C. J. Salter, the gardener at Woodhatch Lodge, Reigate, Mrs. T. B. Haywood's charming Surrey residence, has recently secured three Awards of Merit for seedling Dendrobiums at one sitting of the Royal Horticultural Society's Orchid Committee. The batch of plants, general and seedling, to be seen there just now run into several hundreds, and in pots ranging in size from 10-inch down to thumbs. All are in the most robust health, affording conclusive proof, not only of the merits of the seedlings, but also of the skill of the cultivator. The remarkable growths made yearly are invariably the theme of admiration of all who see them throughout the long lean-to houses in which the Dendrobiums are, open wood trellis stages exist, and even on these in the fronts of the houses the plants stand on inverted pots. Thus they are kept quite free from stagnant moisture and air, a treatment which no doubt largely conduces to their rude health. Beneath the front stages, 14 inches from them, are corrugated iron stages thinly coated with breeze ashes, which are kept just damp. The back stages are in tiers one above the other, and are quite open, standing from 3 to 4 feet above the house floor, which throughout is carpeted with vegetation, chiefly of the variegated Fittonia argyroneura in luxuriant leafage; ample light and air playing about the pots, and a temperature ranging from 65° to 75°, seems to be exceptionally pleasant for the plants. Many growths are 3 feet in height, and very stout. Of large plants, D. splendidissimum grandiflorum, D. Wardianum, D. nobilius, D. Ballianum, D. Andreanum, also the beautiful Woodhatch variety of Ainsworthi, probably the best of its kind in cultivation, are in fine bloom. The three recently honoured seedlings, Mrs. T. B. Haywood, Salteri, and melanodiscus Sunray, have recently been described; these two latter coming from D. Findlayanum have the habit of that pretty form in flowering on the season's growths. They are each in the third year from seed. Mr. Salter is now anxious, having secured such fine varieties, to add to the lips as a setting to the fine dark blotches so abundant, of a rich deep glow of yellow; that is indeed something worth seeking to obtain. From out of the great batch of seedlings yet to bloom other superb forms may be found. A big batch of the older plants, to make way for the seedlings, will soon have to be sent to the sale rooms. Masdevallia Veitchiana grandiflora was carrying a gloriously parti-coloured spathe; Odontoglossums are in great variety, and will soon be making a splendid show. *D.*

Fig. 95.—Seed bearing shoot of Cephalotaxus pedunculata: seeds olive coloured.

Odontoglossum triumphans Bischoffsheimiæ.

This very distinct and showy Odontoglossum is flowering for the first time now in the fine gardens of H. L. Bischoffsheim, Esq., Warren House, Stanmore (gr., Mr. M. Gleeson), out of a batch imported by Messrs. Sander & Sons. It is dedicated to the wife of its fortunate possessor. The flower is of fine shape, one of the most striking characteristics being that the sepals are almost entirely of a bright reddish-chestnut colour, the margin of each of the tips only being pale yellow. At the base of each segment also is a narrow wavy, yellow line, but almost hidden by the labellum and column. The petals are of a bright yellow colour, with some reddish markings, and the broad lip white, with a yellow crest, and an irregular horseshoe-shaped reddish band in front. The Odontoglossums are growing grandly in leaf soil, and when this fine variety is perfected by Mr. Gleeson, it will be very fine. *J. O'B.*

NOTICES OF BOOKS.

A Research on the Eucalypts.

Under this title, Messrs. R. T. Baker, economic botanist, and H. G. Smith, chemist to the Technological Museum of New South Wales, have published a quarto volume devoted to the Eucalypti, and the essential oil obtained from them. The authors found their notions of a species, 1, on a perfect knowledge of the trees; 2, the nature and character of their barks; 3, the nature and character of their timbers; 4, the morphology of their fruits, leaves, buds, &c.; 5, chemical properties and physical characters of the oils, dyes, kino, &c.; and any other evidence, such as that afforded by histology, physiology, &c., which will assist in establishing differences or affinities of species. We should have feared that however good in theory, this plan would not be feasible in actual practice, and that the ordinary botanical student could not possibly avail himself of all these points, or co-relate correctly those which were at his disposal.

"Our experience," say the authors, "show that a species so founded is practically constant in specific characters, however great the range of distribution may be. This research does not in the least favour the uniting of species." Consequently, we find the authors' estimate of what constitutes a species different from that of those botanists that have dealt with the subject mainly from a morphological point of view. "The main object of naming the species is, we are told, for the purpose of recognition." We should put this differently, and say, the main object is to recognise the species, and having done that, then to apply a name for convenience of reference.

It is satisfactory, however, to find that the systematic classification proposed by the authors agrees closely with that of Bentham, founded on external characters. This comes as a consolation after the enunciation of the requirements previously given.

One very important result of the authors' labours is that, according to them, it is possible to say what the amount of oil obtainable on a commercial scale from any species of Eucalyptus growing in New South Wales will be; and owing to the practical constancy of constituents in the oils obtained from identical species, it is also now known what the prospective value of such an oil may be. We presume that uniformity of external conditions and identity in stage of growth are assumed.

The authors give a table showing the conjectural affinities and genealogical relations of the genus and its species, and issue a series of plates indicating the co-relation between different methods of venation, and the chemical composition of the oils, &c. If this can be substantiated, we need hardly say it will be a discovery of no slight importance and value.

The systematic enumeration of the species is based on a combination of both botanical and chemical results. Plates with analytical details are given of several species, including some described for the first time by the authors. Upwards of 110 species are thus treated from the point of view of morphology and of chemical constitution. If the necessary limitations are borne in mind, there can be no doubt as to the great value of such a co-ordination.

The chemical investigations we are not competent to deal with in these columns; we can but admire the industry and research manifested, and welcome this publication as one of the best and most important contributions to economic botany yet published. It forms a worthy supplement to the late Baron von Mueller's admirable *Eucalyptographia*.

COLONIAL NOTES.

COLONIAL FLOWER SHOWS.

I am a constant and appreciative reader of the *Gard. Chron.*, in which I frequently see notices relating to the Australian States and their products, which prove very interesting. In your issue of November 8, 1902, my attention was drawn to the heading "Colonial Flower Shows." In this article you deplore the fact that in the Colonial States the horticulturists "slavishly" copy the Old Country in their flower shows. You then, by way of comparison, give Mr. Peter Barr's account of a most interesting display of wild flowers, held in the town or district of Caledon, South Africa. You are evidently not aware of the fact, that for many years it has been the custom to hold annual displays of the native flora of New South Wales in two of the principal centres of the most favoured districts within easy distance of Sydney. These shows are very largely patronised by the public. It is also the custom with some of the country and suburban horticultural societies to have displays of native flowers at their shows Unfortunately, for those who appreciate them, the plants have been so knocked and pulled about by persons who have no other interest than that of greed, that some of the localities where flowers were abundant, have been completely denuded of the rich and gorgeous flowering shrubs which were so beautiful to gaze upon. Now, it is a well-known fact that South Africa has produced a very much larger and more beautiful collection of flowering plants than any of the Australian States or New Zealand; consequently, it is no difficult matter for the folks there to make a very splendid display of their native flowers. There is no need for me to give a list, as you know them well enough. I notice, however, among the varieties mentioned in your article a number of plants which have been introduced into South Africa. I know that in New Zealand there are many flowering plants indigenous to the country which are not grown here, but I do not knew whether they have classes for them at their shows; the same may also apply for Tasmania. In Queensland, there are lots of very beautiful indigenous flowering shrubs, &c. I am not in a position to say whether they hold displays of them or not, but I have never seen any reports. Now, in this State, New South Wales, a very large proportion of the residents, especially in the surroundings of Sydney, are folks who have come out from the Old Country to throw in their let with us, and the old gardening instincts are still with them, consequently they grow plants which they knew in their younger days. Then, again, the desire amongst enthusiasts here is to grow flowers as good as those grown in any ether part of the world, and this has also a tendency towards the display at horticultural societies of such flowers as are grown elsewhere.

I can quite understand that many gardeners and others in England would appreciate a display of Australian or New Zealand native flowers—I daresay much more so than we should do. There is one great difficulty, however, which we find in the way, and that is, the question of the cultivation of the native plants. If that could be surmounted without great trouble, I have no doubt your wish could be realised. Many of our amateur gardeners would be pleased, I am quite sure, to give up a portion of their gardens to native plants. *Warwick Lloyd, care of Anderson & Co., Seed Merchants, Sydney.*

Reports of the Saint Lucia Stations.

Very favourable reports are issued concerning the Botanic Stations at Saint Lucia during the past year. Dr. Morris says that: "Economic and other plants, to the number ef 15,461, exclusive of over 2,000 plants delivered free to purchasers of Crown Lands in the colony, were distributed during 1901-2. These figures, as compared with 6,227 plants in 1901, indicate a satisfactory rate of progress in this direction. Such economic plants as Cacao, Nutmegs, Kola, and Liberian Coffee, already established at the Botanic Station, are said to be in a thriving condition. The plots of Vanilla and Pine-apples are being transferred to the Agricultural School, and it is now proposed to conduct all further experiments of the kind at that institution, where the soil and ether conditions are more favourable."

As regards Barbados, Dr. Morris reports that: "At Rivière Dorée Experiment Plot, where the soil and climate are unsuited for the growth of Cacao and other plants requiring a moist situation, experiments are being conducted with other crops more suited to the locality. So far, it would appear that Cotton and Limes are the most promising industries for this part of the island, and efforts are being made to encourage the cultivation of these products in a thorough and systematic manner.

"Mr. Hudson speaks encouragingly of the progress made on the Cacao Experiment Plots since they have been placed under the care of the Imperial Department of Agriculture. While the yield of Cacao has in every case considerably increased, the most hopeful feature in connection with these plots is perhaps the interest now taken in the work by both large and small landowners. The Agricultural Instructor states that several enquiries have been received from planters as to the manures and other means used, and several are following these methods on their own estates. The report furnishes a valuable record of substantial progress accomplished in furthering the agricultural interests of the colony."

GLADIOLUS CHILDSII.

I have been so often questioned as to the method of growing this superb form of Gladiolus, that a few remarks at the present time may be of use to your readers in the north. We cannot depend upon other sections to flower perfectly unless they have been forwarded under glass, but these on the contrary produce their spikes when planted unstarted. When I first cultivated them several years ago, the corms were treated in the same manner as those of G. gandavensis and other sections, but a batch of seedlings left to themselves proved conclusively that it was better not to start them, and so for the past few years they have been planted without starting. Any time from the middle of March till the second week of April suits admirably to plant. Perhaps I may be permitted to indicate a source of occasional failure. Last year I was shown a lot of rubbish that I was told had been purchased for G. Childsii, but on a little enquiry it came to light they had been purchased for a few shillings a hundred, and were simply the "out-walings," as we say in Scotland, of a poor batch of seedlings. A first-class quality is not expensive, and it does seem a pity for the sake of a few shillings to run the risk of failure. Even named sorts are rather cheaper than the general run of Gladiolus, and these named selections are so surpassingly fine that I can recommend the purchase of all the varieties that are to be had, and from these to raise seedlings, which it is not difficult to do, as they seed quite freely. Stock can also be increased of many sorts by keeping and growing on the numerous bulblets that are to he found at the base of each corm in autumn. *R. P. Brotherston.*

Fig. 96.—Cephalotaxus pedunculata var. fastigiata: the lower figure shows a sporting branch in which the leaves were two-ranked. (see p. 227.)

NURSERY NOTES.

PALMS FOR AMERICA.

On the occasion of my recent visit to the Turnford Hall Nurseries, I observed some half specimen Palms growing in neat, plain Oak tubs, which, I was told on my enquiring if this was the usual mode of growing them, that these particular plants were for exportation to New York, U.S.A. The tubs having straight sides, take up less space than pots, and are lighter, and less liable to be broken. *S. Castle.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

The Peach-disbudding.—In the warmer counties, Peach and Nectarine-trees will be now sufficiently advanced in growth to be disbudded. The work should be gradually carried out, so that no check is given; a commencement being made by rubbing off all foreright shoots, and after an interval of ten days again going over the trees and rubbing off some of the other shoots. Trees which cover their allotted areas will require to have from two to four shoots left on the current season's fruiting-wood, according to the length of that left at pruning time. Let the aim be to secure a shoot of moderate strength at the base, and on the upper side of the fruiting-wood whenever that is possible, and one at the tip if there is space for further extension; and if not, this shoot should be pinched at the point. Any shoots which are left between these two may be removed at a later date, as the shoot from the base requires more space to extend. Do not be tempted to leave any strong shoots, even if there is space to lay them in, such shoots ripening badly, and being usually destitute of blossom-buds. In young trees more shoots may be left than in older ones, but on no account should the shoots be laid in thickly, but 3 to 5 ins. width of space should be allowed between the bearing shoots. When a shoot seems likely to take the lead unduly at the expense of others, it should be pinched back to 2 or 3 inches in length, and the shoot that is lower down allowed to take the lead. Cold winds, as usual, have prevailed during the flowering period, and but little sunshine, and as a consequence aphis have appeared on the shoots and leaves. Take advantage of mild weather to syringe the trees with quassia-water or the extract of the same, doing this after mid-day, so as to allow the trees to become dry before night-fall. Do not remove the protecting nets at present, or a check may be given to growth, and developing blister.

Apricots.—As soon as it can be seen which fruits are taking the lead, if the set of fruit is abundant, thinning may commence; but it is well not to thin too freely before the stoning is finished, as the fruit sometimes drops, even on the best Apricot soils. Any strong shoots that are not required for the extension of the trees should be pinched back when 6 or 8 ins. long.

Cherries.—In the orchards around this neighbourhood the trees are in full bloom, but the blooms are weak and small, owing to the sunless weather, and the prospects of a fine crop are not promising.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Seed-sowing.—Seeds of most kinds of hardy annuals should be sown when the ground is in a proper condition. The soil having been manured and dug, or trenched some time ago, let the stations be raked level and smooth, sowing sufficient seeds to allow of some amount of thinning to be carried out later on. Cover the seeds according to their size, more or less with the finer particles of soil. If the staple is not in good condition, it may be necessary to provide prepared soil for this purpose, not allowing it to range above the general level of the bed or border. Salpiglossis seeds are sometimes included among half-hardy annuals that are usually sown under glass, but I would advise those of your readers who have had trouble with this plant to raise, to treat them as hardy annuals, sowing where they are to flower, which is a preventative of the premature death so prevalent with transplanted Salpiglossis in some gardens.

Bedding Plants.—Arrears in propagation should be brought up to date as soon as possible, not many weeks intervening between the present and planting time. The tops may be taken off such early-struck plants as Verbenas, Iresines, &c., and put into the propagating frames. Continue to plant in boxes or pans cuttings having sufficient roots, affording ample space, so that they may not get starved if bad weather should delay the work of bedding out. The hardier bedding plants should be removed from the glasshouses, &c., to cold frames as soon as they are ready, observing much caution in the case of Coleus, Alternantheras, Iresines, and others which grow best for the present in an intermediate temperature.

Ferns.—This is a fitting time to lift and divide all species of hardy Ferns, the plants being on the point of pushing forth new fronds and roots. In suitable situations hardy Ferns are effective and pleasing objects in the summer, and to be without a hardy fernery, however small, in some shady part of the garden is to sacrifice a lasting pleasure. If reasonable care be taken in lifting and dividing the plants, and in supplying them with water till well established, losses will be few. Should the staple be unsuited to the needs of Ferns, the addition of leaf-mould will probably make it suitable.

Alpines.—Empty pockets or spaces in the rockery may now be filled with alpine and other rock-plants in variety, providing for each a suitable mixture of soil, as in this matter many of the best rock-plants are rather fastidious. Choice of position has, too, much to do with their welfare, many of them being shade-lovers, and delighting in cool surroundings.

Hyacinths.—Where the double forms of Dutch Hyacinths are grown in the open garden, the flower-shafts will require to be supported with short stakes, the spikes being too heavy to be self-supporting, and they are easily broken.

Lawns.—From now onward, mowing will claim attention. I like the first cutting to be done with the scythe, which removes strong tufts of grass, and give the lawn a smoother appearance than is possible with the mowing-machine. Be careful to have all pebbles and stones removed from the turf by sweeping, so that nothing is left which will injure the cutters of the machine.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury.

Calanthes.—C. Veitchi and its hybrids, now starting into growth, will require to be re-potted, i.e., when the growths have reached a height of two inches, and ere the young roots are formed, every bit of compost should be shaken from the old roots, and the latter shortened to about one inch. Examine each pseudo-bulb carefully for scale, these being easily removed when they are detected. Pot each pseudo-bulb separately, those of good size going into 48's, and extra strong ones into 6-inch pots. Those of the smaller growing species take smaller pots than these. Place clean crocks to the extent of one-third of the depth of the pots, over which put a layer of moss, and then the compost which may consist of turfy loam two-thirds, decayed Oak leaves one-third, and a small quantity of finely chopped sphagnum, and a considerable quantity of coarse silver sand. The mixing the various ingredients together: I do not advise the use of dried cow-manure in the compost; mild liquid manure, when the plants are well established, and in need of assistance, being better. Thoroughly warm the compost before using. In potting, place the base of the pseudo-bulb about an inch below the rim of the pot. A very light position should be given the plants in the warmest house, and no water afforded for several weeks after potting; but damping between the pots twice a day till the roots seize upon the compost, when water in small quantities may be applied with a rose-watering can. A wet soil in the early stages of growth turns the young growths black, and impairs the health and disfigures the plant.

Oncidiums.—The Brazilian species are O. varicosum, O. Forbesii, O. Gardneri, O. Dasytyle, &c., which make a display in the late summer and autumn, are of easy cultivation, especially when a leaf-soil compost is made use of. O. tigrinum, from Mexico, is a good companion plant, and grows well in company with them. No matter how vigorous the plants, or to what size the pseudo-bulbs have grown during the summer, the large spikes they produce usually cause the former to shrivel, especially if the flower-spikes remain long on the plants. If the shrivelling is not severe, and the plants are not allowed to remain dry at the root for any lengthy period of time whilst resting, the pseudo-bulbs will have regained their normal condition, and be now growing anew. As new roots soon appear, repotting should be done betimes if found to be necessary. These plants should be suspended from the rafters of the cool intermediate-house, and the pans used should be well drained; and use made of a compost consisting of two-thirds good leaf-soil, one-third peat, with the usual addition of silver-sand, and of fresh sphagnum wherewith to cover the surface. Apply water carefully, or the young growths will damp off.

Cœlogyne cristata, C. cristata alba, and C. cristata Lemoniana.—As soon as the flowers are removed, a copious supply of water should be afforded, in order to plump up the pseudo-bulbs, and more especially in the case of large masses.

Odontoglossum citrosmum.—These plants having been kept without water for a long time in the intermediate-house, will now be making growth, and from which the flower-spikes will soon appear. Afford the plants water copiously once, and hang them from the roof in a position to display their flowers to advantage.

Cypripediums.—The species C. villosum, C. Boxalli, C. Calypso, C. Lathamianum, C. nitens, &c., which flower at about this time of the year, should be repotted if necessary as soon as the plants pass out of flower. For compost, drainage, &c., see Calendar, February 7. Newly-potted plants must be placed in a shady position, and be frequently sprayed before the hot weather arrives.

FRUITS UNDER GLASS.

By T. H. C.

Succession Vineries.—As soon as the thinning of the bunches and berries on succession Vines is finished, apply a moderate sprinkling of Thomson's Vine-manure to the soil, and afford tepid water and liquid manure copiously. Muscat of Alexandria Grapes at this stage need a night temperature of 70° to 75°, and other varieties 65° to 70°, with an increase of 10° to 15° during the day, the lower figures ruling in cold weather. Tie down gradually, and stop the laterals of Vines in the later houses, and attend to the pollination of the flowers daily. Disbud shoots on Vines recently started as soon as it is seen which are the more fruitful, leaving one to a spur. Close the latest houses, as the Vines are now breaking freely.

Thinning Grapes.—This operation is an important one, and should be carried out methodically. To the exhibitor, it is very necessary to have the bunches perfect in form, with even-sized berries properly thinned, each one having its own place and position. A knowledge of the size the berries attain is necessary, and should be borne in mind by the gardener during the thinning. Grapes of the Gros Colman or Duke of Buccleuch type require severe thinning, and when well done the bunches present a rather skeleton-like appearance, as compared with bunches of varieties having smaller berries. In the first place, see that the lateral bearing the bunch is firmly secured to the trellis. If the bunch is a large one, and it is desired to retain the "shoulders," tie them out evenly with thin strands of raffia, or, better still, use stem bouquet-wire, bending one end into a small hook with which to hook up the shoulders, and secure by the other end to the trellis-wires. Commence thinning at the bottom of the bunch, work upwards and finish off with

the shoulders, cutting away along with many others all small and seedless berries, as well as those in the centre of the bunch. Combine quickness at the work with care not to rub or bruise the berries left. A good bloom on the ripe bunches is most desirable, but it cannot be obtained if they are rubbed at thinning time. A thin forked stick will be found useful in manipulating the berries of large bunches; and at all times commence to thin directly the flowers are set.

Early Peaches and Nectarines.—When stoning has taken place, thin the fruits if the trees are bearing more than one to each 10 to 12 inches square of surface. Tie in the shoots thinly to the trellis, and any having fruit at their base may be shortened back to three leaves. Examine the borders, and if the soil is found to be approaching dryness, apply tepid, diluted liquid manure-water, and syringe the trees twice daily, and do not permit red-spider or other pests to obtain a footing. Ventilate freely when the weather permits, but guard against cold draughts, or admitting large quantities of cold air at a time. Afford a night temperature of 60° to 65°, and 10° to 15° more by day, with plenty of moisture in the atmosphere.

Succession Peach-houses.—Partially thin fruits that have set too abundantly, but leave the final thinning until after stoning has taken place. Disbud later trees before the shoots attain to a large size. Afford air continually to trees from which fruit is not wanted until late in the season, more or less according to the state of the weather.

Tomatos.—Winter-fruiting plants are with me still carrying many fruits, and require liquid-manure frequently, so as to help them till the young plants come into bearing. Distribute the pollen of the flowers on young plants by sharply tapping the trellis, pinch out all side growths, and loosely tie in leading shoots.

Strawberries.—After the fruit is gathered, the plants may be hardened off by removing them from the houses to cold frames, if they are to be planted out-of-doors for fruiting in the autumn. Keep up a succession of fruiting plants. Until the fruit begins to ripen afford the plants in all stages copious supplies of plant food, and, except when in flower, syringe them twice daily. Much of next year's success will depend upon the preparation of the runners, and if not already done, the bed for producing them should be well mulched with short farmyard-manure, and the bed set apart for the production of runners only.

THE KITCHEN GARDEN.

By John Fleming, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Celery.—As soon as the seedlings are sufficiently large to be handled readily, prick them out into a spent hot-bed frame having a top heat of 60° to 65°. Light loam mixed with one-third of spent Mushroom-bed manure, passed through a ¾-inch sieve, makes a suitable compost for the bed. The plants should stand at four inches apart, and be kept moist, close and shaded for a few days after being set out, and then be afforded air with caution, gradually increasing the volume until the light can be drawn off the frame by day without causing the plants to flag. Remove later sowings from the warm frame to cold ones. A third sowing may now be made on light rich soil, in a warm spot. In the north and in cold districts everywhere, this late sowing should be made in a cold frame.

Carrots.—The ground for this crop having been well trenched, but not recently manured unless the manure is buried two feet deep, the principal sowing may be made at about this date, unless wire-worm and the Carrot-maggot are troublesome. When the end of the month is sufficiently early, sow in drills drawn at twelve inches apart, and mix the seed with dry earth or sand, and cover with fine soil. When extra large roots are required, holes should be made with a dibber one foot apart, four inches in diameter, and three feet deep, these being filled with finely-sifted refuse potting-bench soil, freely mixed with soot and wood-ashes. Make this firm in the holes, and sow several seeds in the centre of each hole, and when the seedlings are large enough to handle, thin the number to one—the strongest. Carrots growing in frames will require some slight amount of thinning, and to be sprinkled with fresh soot, and the surface of the bed stirred with a pointed stick. Never allow the soil to become dry until growth is completed, then discontinue affording water.

Beetroot.—A sowing of Egyptian Turnip-rooted Beet may be made at this date on land similarly treated as that upon which Carrots are sown. The main sowing may wait till the first week in next month.

Leeks.—Young plants which have been hardened off may now be planted in trenches dug out 18 ins. wide and 2 feet deep if the land be light; and on that which is heavy and very moist, plant on the level and mould up as growth advances. In the case of trenches, the soil at the bottom should be broken up with a digging-fork, and a layer 4 ins. thick of rotten cow-dung placed on it; and above this some turfy-loam, leaf-mould, and spent Mushroom-bed manure, together with a light dressing of bone-meal and wood-ashes. Set out the plants as deep as the bottom, the leaves pressing the soil moderately firm against them, but disturbing the roots as little as possible. Afford water if the weather be dry, and syringe the plants twice a day till established.

Herbs.—Seed of Borage, Pot-Marigold, and other herbs in request in the kitchen and still-room should now be sown. Seeds of Sweet Basil and Pot-Marjoram should be sown under glass in warmth of 60°, and planted out in May in frames or on a warm border, or sown at that date out-of-doors. Sowings of these two may be made monthly, during the summer and early autumn.

Broccoli.—Make a sowing of early varieties. In late districts late varieties may be sown forthwith, but in the warmer ones the end of this month will be early enough.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Pelargoniums.—The earliest of the show section will be showing their buds, and may be assisted with manure-water, afforded once or twice weekly. Afford plenty of space, and keep the plants near the glass; tie out the shoots to neat stakes, and fumigate should aphis appear. Shift on recently-rooted zonal cuttings before they get pot-bound, using as potting soil principally loam, together with a small quantity of leaf-soil, bone-meal, and sharp sand. Pot firmly, and place on an airy shelf, but do not apply water in much quantity. Pinch out the point at the third joint.

Salvias.—Amongst the most easily managed plants for the greenhouse or conservatory from October till April are the Salvias, providing some half a dozen varieties are cultivated. The following succeed each other in the order given, and may be struck from cuttings at the present season if inserted in 4-inch pots filled with sandy soil, and placed in a temperature of 60°, with or without bottom-heat. They should be kept close for two or three weeks. Pot them singly into 3-inch pots when rooted, keep shaded for a few days afterwards, and transfer them to a cold frame in three weeks, nipping out the points of each. S. azurea grandiflora has sky-blue flowers, and should be more cultivated than at present; S. Betheli has rosy-pink flowers, those of S. splendens grandiflora are of a glowing scarlet; S. rutilans are majenta (this flowers nicely again in April), S. Heerii is a dazzling scarlet, and good for cutting; and S. gesneriflora, bright scarlet. The plants should be kept as cool as possible until early in March; S. splendens grandiflora bloom much more freely if raised annually from seed sown forthwith, and treated similarly to cuttings after being potted up; S. azurea may also be divided as Dahlias sometimes are.

Coronilla glauca.—The shoots of old plants should be cut back, and the plants syringed once daily; and a fortnight later slightly reduced at the roots, shifted into larger pots, and placed under glass to get established, and later removed to a sunny sheltered spot out-of-doors. I find this plant most useful for centre beds in lofty houses when grown to a height of 4 to 6 feet. It begins to flower early in the autumn, a date when yellow flowers are getting scarce. Young plants require topping twice or thrice. Loam and a small quantity of leaf-soil form a suitable compost; assist the plants with weak manure-water occasionally when the pots become filled with roots.

Bougainvilleas.—Large plants should have superfluous shoots removed before these attain much length, which tend to shade what otherwise would be flowering-shoots. Even those in pots often repay for disbudding for the same purpose.

Genistas or Cytisus.—The variety racemosus is that usually cultivated under glass, affording plenty of flowers from the new year onwards if treated as cool greenhouse plants. As the plants pass out of flower, prune the shoots fairly hard back, and place the plants in a house having a temperature of 55° to 60°, and syringe them morning and afternoon. They will soon break into growth, when the necessary repotting should be undertaken, reducing the root-mass and repotting in rich turfy loam, with a small quantity of peat added, and as much coarse sand as will afford porosity. Keep the plants under glass till growth is well advanced, then place them on a coal-ash bottom out-of-doors in a sunny spot. Should strong shoots unduly take the lead, pinch out the points. C. canariensis is useful for succession, and is a much dwarfer plant. Cuttings about 3 inches long with a heel may be taken at this date. When inserted in sandy peat in small pots, and covered with bell-glasses, they strike in a temperature of 60°, and they will also root if placed in a shady border under hand-glasses, but take longer about it. In Devon we also root Luculias and Cassia corymbosa in a similar manner. Seedling Cytisus grow much more straggly than cuttings, but they do not flower so freely, though fine plants may be obtained within a year if seed be sown in November, and the shoots are stopped well up to midsummer.

THE APIARY.

By Expert.

Seasonable hints.—Stocks of bees are sometimes lost at this season through lack of food, and this is known as "spring dwindling." It can be prevented by a little gentle feeding in the manner described below.

Stimulative feeding.—As soon as the Crocuses begin to blossom, and the bees begin to get active, stimulative feeding should begin to induce breeding, and also to strengthen the stocks, so that the bees may be able to avail themselves of the first honey harvest. The consumption of food will be in proportion to the quantity of brood raised, and great attention should be given to feeding should the stores run short. Uncapping the sealed honey near the brood-nest will have the same stimulative effect as feeding, and also cause the expansion of the brood-nest; but if there is a scarcity of food in the hives, a continuous but slow supply of syrup must be afforded. Feeding should be continued till the bees are able to get a sufficient supply from natural sources, when they will neglect the feeder. The recipe for spring syrup is as follows:—8 lb. white pearl cane sugar; 6 pints water; ¼ oz. vinegar; ¼ oz. salt. Boil the whole for not more than three minutes, and stir constantly to prevent burning; and continue to stir for a short time after taking from the fire.

Pollen.—In some districts bees are busy breeding, and in this they should be helped in the way of supplying pollen. Artificial pollen can be given them in the shape of pea-flower placed about in small boxes, placing shavings or straw on the flower to enable the bees to use it up more easily. A little flour should be placed in the Crocuses to entice the bees to take it.

Robbing. — Look to hives that are not very strong, and protect them as well as possible or they will soon be robbed clean out. Any slight hubbub with the hive should be at once attended to, and carbolic cloths used, or carbolic powder shaken down, and the hive nearly closed; sufficient room only being left to let one bee pass in at a time, which enables them to protect themselves.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, APR. 13—Bank Holiday.

WEDNESDAY, APR. 15—Shropshire Horticultural Society, Spring Show (local).

THURSDAY, APR. 16—Linnean Society Meeting. Midland Daffodil, Show at Birmingham (two days).

SATURDAY, APR. 18—Fifteenth Quinquennial International Exhibition at Ghent, Belgium, from 18th to 25th inclusive.

SALES FOR THE WEEK.

WEDNESDAY, APRIL 15—
Azaleas, Palms, Bays, Lilies, &c. at 12 30—18,000 Cannas and 3 500 Caladiums, at 2 30, at Stevens' Rooms.—Palms, Plants, Roses, Perennials, Liliums Ferns, Herbaceous plants, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

FRIDAY, APRIL 17—
Imported and Established Orchids, Orchids in Flower and Bud, at 67 & 68, Cheapside, E.C., by Protheroe & Morris at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —48·1°.

ACTUAL TEMPERATURES:—
LONDON.—*April 7* (6 P.M.): Max. 54°; Min. 46°. *April 8* (Noon): Fair, cloudy.
PROVINCES.—*April 7* (6 P.M.): Max. 50°, East and South Coast England; Min. 41°, Shetland.

A Research Laboratory Wanted.

SUBJOINED is the programme of the gardening school established in the Royal Botanic Society's Garden, Regent's Park, which is well adapted for its purpose. We trust now that the laboratory is opened it will be utilised not merely for the instruction of novices, provision for which exists in various places throughout the country, but for experiment and research on points of cultural interest. As we have often pointed out, there constantly arise questions demanding time and skilled observation for their solution. Very many of these questions do not necessitate expensive apparatus, nothing in fact but the most modest equipment, but they do demand a competent observer and experimenter who would devote his whole time to research and experiments, having a directly practical bearing on horticulture, and who should receive a salary commensurate with his qualifications. In fact, we want progress, not a mere repetition of what our fathers, considering the means at their disposal, did as well as we.

FIRST YEAR.

OUTDOOR WORK.—Ground operations; implements used; levelling with borning-rods; draining; formation of paths, beds, and lawns; trenching, digging, and hoeing; preparation for planting, &c. Care of lawns; mowing with machine; sweeping, weeding and rolling. Flower gardening; herbaceous borders; pricking-off; planting, staking, tying, and watering. Vegetable and fruit garden; double digging, manuring; preparation of seed-beds; aërating the soil.

INDOOR WORK.—Cleaning and crocking pots; materials required for composts; potting, watering, cleaning, staking, tying, and top-dressing plants. Propagation by cuttings, as Geraniums [Pelargoniums are meant], &c.; pricking-off seedlings.

SECOND YEAR.

OUTDOOR WORK.—Preparing and storing manure; methods of application. Care of lawns, flower and kitchen garden, shrubbery, fernery, &c.; sowing vegetable and flower seeds, and planting tubers; growing vegetables, flowers, and fruits; outdoor Tomato culture.

INDOOR WORK.—Horticultural buildings, repairing, painting, and glazing. Propagation by division of roots, stems, and tubers; forcing and retarding; insects, and fungoid pests; methods of extermination. Melon, Cucumber, and Tomato culture.

THEORETICAL WORK.—Suitable manures for various soils; principles of hot-water heating.

FIG. 97.—EUCALYPTUS GUNNI, GROWING AT MENABILLY. (SEE P. 234.)

Third Year.

Pruning trees and shrubs; mowing with scythe. Special classes of plants; hybridisation and selection. Care of conservatory, plant-houses, frames, and pits; spraying plants; Mushroom culture; Vine and Fig culture; budding and grafting; labelling.

Theoretical Work.—Keeping garden accounts, stock-books, stores, &c. Purchase of pots, gravel, sand, peat, manure, &c. Elementary meteorology. Theory of landscape gardening; plant parasites; sprays and washes for insect pests. Classes and laboratory work in botany and horticultural chemistry.

The course of instruction extends over three years, and the Society undertakes that each pupil shall receive instruction, and be given opportunities to practise the operations necessary in each branch of gardening.

Examinations will be held, and Certificates granted, and at the termination of the course every effort will be made by the Society to obtain situations for the pupils, if required.

A limited number of boys are given a year's course in rough work and cottage gardening, suitable for those intending to emigrate.

All fees to be paid in advance. Early application should be made to the Secretary, J. Bryant Sowerby, Botanic Gardens, Regent's Park.

We deeply regret to say that the Council of the Royal Horticultural Society have replied to the unanimous wish of the Scientific Committee that such a research station should be established in their garden, to the effect that the time is not propitious for such an establishment. All we can say is that we hope it soon will be.

Royal Horticultural Society. — Examination in Horticulture, Wednesday, April 22, 1903. Candidates wishing to sit for the Royal Horticultural Society's Examination in Horticulture, on Wednesday, April 22, are requested to forward their entries without delay to the Sec., Royal Horticultural Society, 117, Victoria Street, London, S.W.

—— Temple Flower Show, May 26, 27, and 28, 1903. For the sixteenth year in succession the Royal Horticultural Society will hold their great spring flower show in the Inner Temple Gardens (by the kind permission of the Treasurer and Benchers), on May 26, 27, and 28. Copies of the schedule can now be obtained on application to the Sec., Royal Horticultural Society. Applicants should enclose a stamped envelope already addressed to themselves.

Notice of Intention to Exhibit. — The Secretary of the Society desires us to bring to the notice of our readers the following explanations in regard to exhibits: "The Council wish to draw the attention of exhibitors to Regulation 2 on p. 50 of the Book of Arrangements, 1903, which directs that notice of intention to exhibit groups must be given not later than the Friday before. The Council interpret this to mean that the letter should reach the Superintendent at Chiswick, or the Secretary at Victoria Street, on the Friday—preferably the former. The rule further states that exhibitors must at the same time state the nature of their proposed exhibit. Notice will be sent to the exhibitors by post despatched on Saturday, or by telegram, as to whether the space they desire can be placed at their disposal. Exhibitors are also requested to note that Lilies sent with the stamens cut out will not be allowed to be put on the stages, but will have to be removed forthwith."

Linnean Society.—On the occasion of the evening meeting, to be held on Thursday, April 16, at 8 p.m., the following papers will be read:—1. Dr. H. Charlton Bastian, F.R.S., "On some points in connection with the ordinary development of Vaucheria Resting-spores." 2. Mr. W Wesché, "The Labial and Maxillary Palpi in Diptera." 3. Prof. G. S. West, F.L.S., &c., "On Fresh-water Rhizopods, and their Classification."

Chrysanthemum Show at Dumfries.—The Dumfriesshire and Galloway Horticultural Society, which was revived about two years ago, and which has held two successful summer shows, has made arrangements for a Chrysanthemum show, to be held at Dumfries on November 18. The show will not be confined to the district, and it is expected that it will be well supported by growers generally and the public. The cultivation of the Chrysanthemum is steadily growing in the south of Scotland, and a great improvement in the flowers grown in the district is to be noticed since the last show, held a good many years ago.

Nature Studies.—Mr. G. J. Scott Elliot has published, through Messrs. Blackie & Co., a little volume destined especially to interest the student in the marvels of plant life. It is not intended for experts or professed botanists, but for that much larger class of nature lovers who stand in need not so much of technical instruction as of guidance in enabling them to see and understand what is displayed before them in field or forest, hillside or fen. The book suggests to us a condensation of Kerner's celebrated work, and of Lord Avebury's charming booklets, adapted to the requirements of ordinary students. Mr. Scott Elliot's book is devoted rather to the "How and Why?" than to the "What?" Hence the relationships between plants, which it is so interesting and so instructive to unravel are scantily treated, the author apparently thinking that systematic botany consists merely in the identification of species, and the application to them of more or less barbarous names. The necessity of not neglecting this department of the science is, however, illustrated by the singular statement on p. 293, that the "Douglas Fir" is the same as "Pinus nobilis," whatever that may be. A copious bibliography and a good index complete a very interesting and readable book.

The Veitchian Nurseries.—Mr. J. H. Veitch has issued for private circulation a series of photographic views representing portions of the Veitchian nurseries at Chelsea, Combe Wood, Langley, and Feltham, respectively. They are prefaced by a family pedigree from the time of John Veitch (1752-1839), of Jedburgh, the founder of the Exeter nursery. The Chelsea nursery was taken over by his grandson, James Veitch (1815-1869), from Messrs. Knight & Perry, in 1863, and as the business has grown, the other nurseries have been added. The omission of Mr. Harry Veitch's portrait is to be regretted. The Chelsea nursery is gradually being reduced in size, its houses being in future mainly destined to be show-houses, supplied from the country nurseries, where the plants can be grown under more favourable conditions. The seed warehouse at Chelsea has been lately rebuilt, and every effort made to sustain the well-earned reputation of the firm in this as well as in other departments. The beauties of Coombe Wood are indicated, particularly in the case of the Lily-pond and Bamboo-garden; but repeated visits are necessary to grasp the great interest this nursery possesses in its quarters reserved for the cultivation of new hardy plants introduced by the firm. The hybridising department, over which the wizard Seden presides, is at Langley.

Haarlem.—Some of the visitors to the Ghent Show will doubtless avail themselves of the opportunity of running on to Haarlem, where they will find abundance of subjects to interest them. Mr. Dandey, Baan 5a, at Haarlem, has a fine collection of Hippeastrums in flower, and amongst them is, we learn, a pure white variety.

Principles of Horticulture.—It will be remembered that Baron Schröder offered some substantial prizes in connection with the class on the Principles of Horticulture, held by Mr. Wilfred Mark Webb, at Egham, under the Surrey County Council. These have now been won by Mr. Frank Topps, gardener, Englefield Green (£2 10s.); Mr. W. G. Spence, schoolmaster, Staines (£1 10s.) and Mr. Jonathan Chilcott, gardener, Englefield Green (£1). The prizes will consist of books on horticulture and botany, of the values indicated. The class was very successful, for sixteen students made all the attendances required by the Board of Education.

Bunch Primroses.—These popular hardy flowers are now making prodigal displays of colour upon soils of sufficient richness and retentiveness to meet the cultural requirements of the plants. A day or two ago we were shown a selection of flowers, by Messrs. W. Bull & Sons, King's Road, Chelsea, of a strain possessing a great amount of variation in shades of colour. Many of them were of shades of yellow, some nearly white, and the reds and purples were of pleasing depth and richness.

United Horticultural Benefit and Provident Society.—The monthly Committee Meeting of this Society was held at the Caledonian Hotel, Adelphi Terrace, Strand, on Monday evening last; Mr. Chas. H. Curtis in the chair. Eleven new members were elected, and one other nominated. The membership now exceeds 1,000. Seven members were reported on the sick fund.

Swanley Horticultural College.—We note that the women have ousted the men from this establishment, which is now restricted to women only. The course of instruction provides that actual work accompanies, under skilled supervision, the theoretical instruction. The programme is very complete. The fees for board, residence, and tuition, amount to £80, with a few extras, and the course lasts two years. A colonial branch has been established for the benefit of those women who are intending to emigrate to the colonies. The practical instructor in gardening is our old contributor, Mr. C. Herrin, late of Dropmore Gardens.

"**Botanical Magazine.**" — The plants figured in the number for April are the following:—

Clerodendron myrmecophilum (Ridley), tab. 7887.—A very handsome species, with broadly lanceolate, cordate leaves, and loose pyramidal, many-flowered panicles; the corolla is orange-yellow. Discovered by Mr. Ridley in Singapore, and flowered at Kew.

Euphorbia obesa (Hook. fil.), tab. 7888.—A very remarkable plant from South Africa, with a thick, oblong, cushion-like stem, with eight prominent ribs like a Melocactus. It flowered at Kew in 1899, but has since disappeared. Perhaps the illustration in the Magazine may lead to the discovery of its whereabouts.

Iris Colletti (Hook. f.), tab. 7889.—This is synonymous with the Iris nepalensis var. Letha, of Foster, in *Gardeners' Chronicle*, 1892, ii., 458. It is a native of the Shan Hills in Upper Burmah. It flowered under glass at Kew, but succumbed when planted in the open air.

Agave Bakeri (Hook. f.), tab. 7890.—A very distinct species, with strap-shaped, entire, acuminate leaves, and erect, cylindrical racemes of greenish flowers. Kew; native country unknown.

Lathyrus pubescens (Hooker & Arnott), tab. 7891.—A shrub covered with soft hairs. The leaves are pinnate, with elliptic pinnæ, and terminate in branching tendrils; the flowers are in close racemes, each lilac-coloured, with the wings white on the inner surface. Kew and hort., Guinbleton; native of temperate South America.

Mr. J. Burtt Davy, heretofore Instructor in Botany in the University of California, has been appointed State Agrostologist and Botanist for the Transvaal State. His official residence will be at Pretoria. Mr. J. Burtt Davy is an old Kewite, and a valued contributor to this journal.

International Association of Botanists.—A meeting of the delegates will be held at Leyden on April 15th to 18th. Visits will be paid to some of the Botanical Institutes of Holland, and to the Quinquennial Exhibition at Ghent. Dr. J. P. Lotsy, of Leyden, is the Secretary.

Hybrid Pelargoniums.—Together with the subjoined note, Dr. Bonavia sent us some specimens of the hybrids referred to. They were not in good condition when we examined them, but sufficiently so to show that Dr. Bonavia has succeeded in raising some forms of great beauty and interest, constituting, as gardeners say, a new break. The leaves of the variety Clorinda are deliciously fragrant, thinly hirsute, some 7 to 8 inches across, cordate, rounded, palmately 7 to 9 lobed, with broad, rounded lobes, thus showing an intermediate condition between the old quercifolium and a zonal Pelargonium. The flower-trusses are in simple umbels, the individual flowers circular, regular, fully double, and of a rich rosy-crimson. The colours of the other varieties are of various shades, from pale pink to deep rose and red. We congratulate Dr. Bonavia on his success:—"I am sending you some flowers of an interesting cross Cape Pelargonium. One parent is P. quercifolium. Unfortunately I have no record of the other parent. I was using the pollen of the Ivy-leaved P. Souvenir de Charles Turner, and possibly the other parent may be that, but there is no certainty about it. However, the result is a valuable acquisition for greenhouse decoration. Its flowers are of a brilliant colour, and open all at the same time, like those of the Cape Pelargoniums, so that each bunch makes a beautiful bouquet, and the individual flowers are not crowded. The leaves are of a deep green, and the fully developed ones exhibit an interesting character. The leaf is divided into three main lobes, but the lateral ones overlap the middle one, and almost hide it. The stem is slender and trails well, and therefore admirably suited to walls or espaliers in a conservatory. On the plant the flowers last a long time, but in the cut state, like all single Pelargoniums, the petals soon drop off. The pistil seems perfect, but the stamens are barren. I have named this beautiful cross Clorinda; its leaves are scented. I include also some flowers of my seedling zonal Pelargoniums. The colour shades are very pretty, and these double varieties are valuable for cutting. They last in water two weeks. The double flowers are a little scorched by the sun."

"The Flora of Tropical Africa."—We are glad to announce the steady progress this important work is now making. The third part of the fourth volume just issued contains a continuation of the description of the difficult order of Asclepiads, by Mr. N. E. Brown; that of the Loganiaceæ, by Mr. Baker; and the commencement of the Gentianaceæ by the two gentlemen named. Those only who have taken part in such work can estimate the patient labour and judgment required in the preparation of such works. The *Flora* is edited by Sir William T. Thiselton-Dyer.

"Flora and Sylva."—Since our previous notice, we have received a copy of the first number, which enables us to confirm what we said when the prospectus reached us. The first article on hardy Bamboos, is charmingly written, by Lord Redesdale; Miss Currey descants upon Daffodils; Mr. Nicholson contributes a very valuable article, which will be permanently useful, on the species of Magnolia; Mr. Carl Purdy has a similar description of the lovely genus Calochortus and its species, to the extreme beauty of which no illustration can do justice. The "Greater Trees of the Northern Forest" include a notice of the Corsican Pine. Mr. Gumbleton's fine collection at Belgrove is described by Mr. Burbidge.

MENABILLY, CORNWALL.

[See Supplementary Illustration.]

The mild climate of Southern Cornwall is well adapted to the growth in the open air of many tender subjects that are not amenable to culture in the colder districts of England, except under glass protection, and it is doubtless owing to that fact that so many owners of land in that favoured county are enthusiastic gardeners, ever experimenting in the naturalisation of rare flowering shrubs, plants, and trees in the open. There are many gardens along the coast-line where treasures of this description may be found, flourishing in the most perfect health; but no spot can probably compare with Menabilly in the varied assortment of these subjects that is collected in its spacious gardens. The estate belongs to Mr. Jonathan Rashleigh, who has, during a long life, taken the greatest interest in acclimatising rare shrubs, trees, and other plants—an interest whose results are observable at almost every step taken in the pleasure-grounds of 21 acres, intersected with 7 miles of walks.

Menabilly lies about a mile and a half to the westward of the lovely harbour of Fowey, and across the long lawn fronting the house is visible the tall landmark of Gribben Head, a promontory jutting out into the Channel, that breaks the full sweep of south-westerly gales. On entering the lodge nearest the town of Fowey, the drive descends a gentle slope for some distance, shadowed by fine trees, and on reaching the level, skirts a narrow valley, at the further side of which, across the emerald grass, and at the foot of a hanging wood, noble clumps of Bamboo arch aloft their pennoned wands 20 feet and more in the air; while at midsummer the lower verge of the wood is pale yellow with the countless, large flowers of numbers of Cornus capitata, better known as Benthamia fragifera. Where the drive crosses the valley, are fine masses of the giant-leaved Gunnera manicata and Osmunda growing close to the water; and ascending the hill, another valley opens out, in which are growing many deciduous Cypresses (Taxodium distichum), the light green of their foliage having a charming effect.

The house is well covered with creepers, amongst which is the Mexican Berberis trifoliata, and the view from the windows in springtide is brightened by thousands of Narcissi starring the verges of the lawns with flowers innumerable; while in the autumn the great corms of Cyclamen neapolitanum, some of them as large as dessert plates, throw up a crowded wealth of blossom, some corms bearing as many as 100 blooms, to be followed throughout the winter by the beautifully marbled leaves.

Among shrubs the following may be mentioned, Abutilon vitifolium, which when seen as isolated specimens, 12 feet or more in height, and covered with their large lavender or white flowers, have a most ornamental effect. Anopterus glandulosa, a native of Tasmania, bearing panicles of white lily-of-the-valley-like flowers. Aster argophyllus, a shrub with musk-scented leaves and white flowers, 18 feet in height at Menabilly. Azara microphylla, which forms a small tree 20 feet or so in height. Callistemon salignus from Australia, a bush of this 12 feet in height, and as much in diameter, is smothered with pale yellow bottle-brush flowers in July; C. speciosus is also grown. Calycanthus occidentalis, 10 feet in height and 20 feet through. Many Camellias are grown in bush form, and the beautiful C. reticulata is to be seen in good condition. Colletia cruciata is 12 feet in height, Chionanthus virginica and Daphniphyllum glaucescens are present, and both Drimys (Tasmania) aromatica and D. Winteri, the latter with scented ivory-white flowers, are about 15 feet in height. Of Escallonias the most notable are E. illimita, 15 feet; E. monteividensis, 10 feet by 15 feet; and E. revoluta, 20 feet by 30 feet. There are good specimens of Eurybia macrodonta, with large, flat flower-heads; Hakea microcarpa, bearing white thread-petalled blossoms; the New Zealand Leptospermum scoparium, 15 feet; Ligustrum coriaceum, and Litsea reticulata, the last 35 feet in height, and the largest example in England; Olearia ferruginea is 15 feet in height. Parrotia persica is a striking sight in the autumn, with its orange-and-crimson leaves; and the Loquat (Photinia japonica) flourishes. Pieris formosa is 12 feet in height, Pittosporum Colensoi 20 feet, and the Chilian Rhapithamnus cyanocarpus, a handsome shrub, bearing blue flowers, followed by violet-blue berries, 20 feet.

Among Himalayan Rhododendrons there are some fine seedlings of R. Griffithianum, better known as R. Aucklandi, one of a bright rose colour, being 10 feet in height. There are also specimens of the lovely Zenobia speciosa pulverulenta. There is a fine collection of Conifers and other trees, of which may be mentioned Picea ajanesis, P. Brunoniana, 18 feet; Abies grandis, 70 feet; and Picea Smithii, 50 feet, both feathered to the ground; Athrotaxis laxifolia, 20 feet, which fruits freely; Araucaria Cunninghami, 30 feet; Acacia affinis, A. dealbata, and A. melanoxylon; Benthamias in great numbers, fine Deodars, and good examples of Embothrium coccineum, which present a glorious sight in spring when vermilion with flower.

Of Eucalypti there is a fine assortment, the largest specimens being E. coccifera and E. Gunnii (see fig. 97, p. 232), about 50 feet in height, and E. cordata 40 feet. Mr. Rashleigh is trying about thirty species raised from imported seed in various positions in the gardens in order to test their hardiness, and some of these have already made good growth and have flowered. Eucryphia pinnatifolia is 10 feet in height, and Hoheria populnea 20 feet; Larix Kæmpferi is grown, and there are several specimens of Magnolia tripetala from 20 to 30 feet in height; while M. conspicua, M. grandiflora, M. stellata, and other species are also represented. There is a good example of Picea amabilis; P. bracteata has a height of 25 feet; P. religiosa of 45 feet, and Podocarpus andina of 15 feet. One of the finest trees in the gardens is Pinus Montezumæ, the specimen, planted in 1874, being now about 30 feet high; and seedlings planted sixteen years are already 18 feet in height. Another interesting tree is a P. insignis standing near the house, planted by Mr. Rashleigh in 1842; it is now about 70 feet in height, and in 1894 had a girth of 10 ft. 6 ins. Pinus patula is 18 feet in height, Retinospora filifera 15 feet, and R. squarrosa 20 feet. Other noteworthy trees are Sciadopitys verticillata and Taxodium distichum pendulum syn. Glyptostrobus pendulus. In an abrupt depression in wooded ground a colony of that noble Tree-Fern, Dicksonia antarctica, flourishes; and Woodwardia radicans, Lomaria magellanica, and Maidenhair grow in the open.

The Palm-walk, some 150 yards in length, is bordered by well-grown specimens of Trachycarpus excelsus, with Phormiums, Cordylines, and Yuccas; of Cordylines, the species represented are C. indivisa (true), C. Banksii, C. Lindleyana, C. Rashleighana, C. Veitchi, and C. australis. Beautiful as are the grounds of Menabilly at all seasons of the year, it is, perhaps, in the autumn that they would most impress a

Fig. 98.—Davidia involucrata: hardy Chinese tree; bracts beneath the flowers; cream-coloured flushed with pink. (see p. 236).

A, showing bracts and female flower; B, showing male flower and bracts; C, showing fruit.

visitor from the northern counties, for then thousands of immense bushes of Hydrangea Hortensia form sheets of flower. Here, beneath the trees and in the open, they stand laden with countless massive blooms, mostly light blue in colour, a hue far preferable to the normal pink. Other Hydrangeas grown are H. H. Otaksa, H. Thunbergi, H. quercifolia, H. paniculata, and H. stellata rosea, whose flowers are first white, then purple, then rose-crimson. H. scandens is grown against tree-trunks, which it rapidly ascends, and where it is far more decorative than when grown on a wall. On one tall Turkey Oak, with a bare, columnar stem, it has ascended fully 40 feet in twelve years, and creates an attractive picture.

Calochorti, usually difficult bulbs to establish, appear to appreciate the soil and climate of Menabilly, as I saw a bed of plants in good health that had not been removed for five years. The New Zealand Forget-me-Not (Myosotidium nobile) exhibits astonishing vigour, planted out against walls in every aspect except due south. Mr. W. H. Bennett, who has had charge of the gardens for eighteen years, informed me that all were grown entirely in sea-sand fetched from the neighbouring beach, and they certainly appeared to revel in the root-run provided. One clump that I measured was 3 feet in height, with a 6-feet spread of leaves, and carried twenty flower-stems, while the largest leaf was 23 inches long and 18 inches wide. A large mass of Echium fastuosum drew my attention, and I noticed a bush of Hypericum patulum, 8 feet in height and 15 feet in diameter.

There is a splendid collection of nearly fifty species of Bamboos, probably as comprehensive as any in the country, and to which Mr. Rashleigh has for many years devoted much attention. The plants have made remarkably fine growth, finding a position exactly suited to their needs in the sheltered valleys. The canes of Arundinaria nobilis have attained a height of between 20 and 30 feet (see Supplementary Illustration); and A. Falconeri, A. Simoni, Phyllostachys mitis, P. Quilioi, P. sulphurea, and P. nigro-punctata are but little less in stature. The numerous magnificent clumps of Arundinaria nobilis were all raised from the seed of plants that seeded and perished in 1872, after a life-time of thirty-three years. The present plants have now completed thirty years, so the inference is that they are nearing the time when they, too, will seed and die, thereby robbing Menabilly of its finest Bamboos. I understand that slips have been taken off the old stools from time to time, and replanted on the chance that some may escape seed-bearing when the parent plants seed and succumb. Amongst the most graceful of these Bamboos are Arundinaria Hindsii, A. nitida, Phyllostachys castillionis, and P. gracilis. *S. W. F.*

NEW OR NOTEWORTHY PLANTS.

DAVIDIA INVOLUCRATA.*

Our illustration (fig. 98) shows a flowering specimen of this fine Chinese Cornaceous plant, collected by Mr. E. H. Wilson for Messrs. Veitch & Sons. It is a shrub or low tree, which recalls a Lime-tree in appearance, but the large coloured bracts that surround the flowers are like those of Cornus (Benthamia) fragifera. The fruit, however, is not berry-like, but hard and woody, and indehiscent.

The plant has been cultivated for some little time in France by M. Maurice de Vilmorin, but now Messrs. Veitch have introduced it into commerce we doubt not that so showy a species will speedily become popular. The tree was originally discovered in 1871 by the Abbé David on the Mountains of Mu-Pin, west of Szechuen, and specimens were sent to Paris, where they were described by our late correspondent M. Franchet. Dr. Henry was the first to gather ripe fruit in the Wu-Shan district, and now Mr. Wilson has sent home a fine series of specimens, as well as seed, from which latter a numerous stock of young plants has been raised. The construction of the flowers is thus described by Baillon (Dictionnaire):—

"The 1 or 2-sexual flowers are grouped in heads. In the males is a globular receptacle, from the surface of which spring a large number of free stamens, with two-lobed oval anthers, free both ends, and dehiscent by sublateral slits. The female flower occupies the upper part of the receptacle; this flower has an inferior ovary, 6 to 10-celled, each cell containing an ovule, descending, anotropal, with the micropyle above and outside. This ovary is surmounted by a conical style, divided into as many lobes as there are cells, radiating, and furnished with a stigmatic furrow; around the style is a perianth, with numerous unequal, small, and subulate segments. Sometimes hermaphrodite flowers are observable, differing from the female flowers only by the presence of stamens within the perianth.

"D. involucrata, H. Bn., is a tree with alternate leaves, like those of a Lime, petiolate; flowers grouped in terminal heads, preceded by two broad bracts, coloured, and forming an involucre."

The statement made in some French works that the fruit is edible when bletted like a Medlar, needs confirmation. It seems probable that some mistake has occurred. *Maxwell T. Masters.*

* *Davidia involucrata* (Baillon). *Adansonia* x, 114 (1872); *Hook. Icon. Plant.*, t. 1961 (1891); *Revue Horticole*, August, 1902, p. 373; *Franchet Plant David*, pt. 2, p. 60, t. 10.

HOME CORRESPONDENCE.

BIG TREES AT SLANEY PARK, CO. WICKLOW.—On going through the woods here recently for clearing purposes, after the storm of February 27, I came across a few very large trees that had been blown down, a few of which I measured. Of these a Beech had a height of 92 feet, with a clear stem of 50 feet, and circumference at the ground-level of 10½ feet, and another of 10 feet. A Silver Fir had a height of 104 feet, with a circumference of 11½ feet; another 97 feet, and a circumference 9 feet 9 inches. We have a great number of all kinds of forest-trees down, but the principal are Beech, Oak, and Larch. *W. F. Oliver.*

THE ANEMONE-BED FUNGUS, PEZIZA TUBEROSA.—In reference to the above, of which a note appears in the issue for March 28, it may be remarked that at Kew the above fungus has long been recognised as a deadly foe to not a few species of Anemone. For example, some five years ago, a charming group of Anemone ranunculoides existed on the lawn near to the large Rhododendron-beds facing the great Palm-house. The actual spot was a bed in which Magnolia stellata was planted, the Anemone (A. ranunculoides) forming a groundwork at the base. A year later I went to the spot, hoping to find the Anemone in increased vigour, but instead, not a vestige was to be seen. Thinking possibly some replanting had been done, I made enquiry of Mr. Irving, only to find that the entire batch had been destroyed by the fungus. Nor would it appear to be new to the Kew authorities even then, as I was still further informed that a large number of plants, though chiefly of the tuberous and rhizomatous sections, had in the past succumbed to the attack. How deadly and disastrous is the pest may well be gauged by the great gap created in Mr. Wolley Dod's garden in a single season. In such instances the outlook is appalling, and the gardener is helpless. *E. Jenkins, Hampton Hill.*

DAMAGE CAUSED IN GARDENS BY PHEASANTS.—I am of the same opinion as Lady C., as regards the so-called remedies in regard to the above nuisance, and after many years experience have come to the conclusion, either to shoot them or to put up with the nuisance. These pest have destroyed hundreds of thousands of bulbs in these gardens. I have used all sorts of nostrums and nauseous things, but all to no purpose; in fact "the pheasants" seem to relish highly-seasoned bulbs, &c. I have to wire in all vegetables, but this winter these birds, not content with devouring bulbs, have plucked off hundreds of single-flowered sweet Violets, also Anemones, in particular those of the scarlet fulgens, foliage and flowers alike being taken. After wiring in my single-flowered Violets they made for my Erythroniums, and plucked the flowers off, avoiding the leaves and flower-stalks; also my plantation of thousands of bulbous Iris. These they made a raid upon, but after destroying some, they left the others for something better; and after destroying the bulk of the yellow Crocuses, they next turned their attention to the foliage of the other coloured Crocuses. It is all very well to say protect your bulbs and plants with wire-netting, which may be done in a small way; but as in my case, where I have three large herbaceous borders, each a quarter of a mile in length, and many other borders and beds in other parts of the garden, to say nothing of thousands and thousands of bulbs planted in the grass, it is impossible. Then, again, to add to your chagrin, these birds are protected and fed at your employer's expense, and in very many cases at a great expense. After feeding on costly bulbs, &c., the birds will fly over the fence into Mr. So-and-So's grounds, it may be, to get out of your way, as if they knew that you dared not to shoot them on another person's ground. At any rate, after obtaining a little grit just to aid their digestion, they return to destroy your bulbs, and oftentimes bring others with them, to the great annoyance of the gardener, to say nothing of the destruction of lovely flowers. I would here mention that I have never known them so destructive among bulbs and plants as during the present year. *W. C. Leach, gr., Albury Park, Surrey.*

FRILLED-TRUNK DAFFODILS.—We have, up to date, at least three frilled-trunk Daffodils, viz., "Crom a Boo," a form of N. spurius, "Ard Righ;" N. princeps, a form with frilled trumpet, that was figured in the *Gardeners' Chronicle*, from Mr. E. Jenkins, a year or two ago; and now Mr. T. Smith sends me from Daisy Hill, Newry, a very pretty "frilled trunk" form of the white Daffodil N. cernuus. "Crom a Boo," which came up as a spontaneous seedling on the lawn of Crom Vicarage, a rectory in co. Limerick, was illustrated in *Gardeners' Chronicle* years ago. The present frilled form of N. cernuus has turned up several times in Ireland, but even now it is as I imagine excessively rare. To those who do not know these frilled phases or forms, I may say that they are beautiful accidents in structure, and of doubtful constancy. A plethoric state of coronal growth causes the edges or margins of the coronal divisions, normally six, which are normally united to form the trumpet, to either bulge out at the seams, so to speak, or as in the case before us, to split up, partially into divisions, the lobes of the coronal growth being separated partially towards the apex or rim, as well as frilled. It may be—I do not say it is—the first phase of extra growth that eventually leads to the doubling process [the process is a different one. Ed.], but in all the frilled Daffodils I have seen hitherto, the stamens and pistil are normal in number, position, and probably in function. These frilled varieties are very pretty, and in many cases they may have been overlooked as being merely malformations, which indeed they really are. The point in their favour is, that they are often quite regular or symmetrical; otherwise we have similar outcropping growths in parrot and other garden Tulips, as also in semi-double Camellias, Roses, and other garden flowers. *F. W. Burbidge.* [A very characteristic sketch accompanied this note, but as we have figured a similar occurrence before, it is not necessary to repeat it. Ed.]

THE DOUBLE WHITE HEPATICA.—There is a peculiar fitness in the *Gardeners' Chronicle* being the first to illustrate this noteworthy plant, inasmuch as it is almost certainly the same as the one which was first mentioned in the correspondence columns of your journal in the issue of April 14, 1894, it having been sent to you by a German correspondent who had raised the flower. Being interested in the Hepaticas, and particularly in the double white, I communicated with the raiser; but the plant was not at that time being disposed of. It appears now, however, to have come into the hands of some of the continental nurserymen, and was offered last year at

about 10s. 6d. per plant. As you remark, it has "been deemed more or less mythical." A double white Hepatica was, however, very circumstantially described in Gilbert's *Vade-Mecum*, and I have known people who have seen a double white Hepatica long before this one was raised. One of these is Mr. W. B. Boyd, of Faldonside, Melrose, who had it as a sport from a clump of the double blue. It was unfortunately lost, and the clump which produced the sport has not again broken away from the blue. The late Mr. Greig, manager at the nurseries of Messrs. Little & Ballantyne of Carlisle for many years, informed me that he had seen a double white Hepatica years in Perthshire, and those who knew Mr. Greig, and the keen interest he took in hardy flowers, are aware that he was not likely to be mistaken. There was, of course, no reason why a double white Hepatica should not exist as well as a double blue or a double red. As a matter of fact, there are several varieties of double blue Hepaticas, differing in size and also in the form of the doubling. I believe that this continental variety now being offered is a seedling. Miss Willmott is to be congratulated on having secured such a good plant apparently so well figured in your pages. *S. Arnott, Carsethorne-by-Dumfries, N.B.*

GHENT.

(*April* 18—26.)

In our next issue we hope to publish a number of representations of new plants, which will be shown at Ghent, and in the following number we shall give a report of this great exhibition, with other illustrations.

All foreign visitors to the exhibition are invited to sign their names, and indicate their address in Ghent, at the Concordia Club, which is placed at the disposal of visitors for that purpose, and the reception of letters, telegrams, &c. The Concordia is in the Place d'Armes, near the principal hotels. It is expected that H.M. the King of the Belgians, accompanied by Princess Clementine, will visit the Exhibition on Saturday, April 18, at 2 p.m. MM. Truffaut, de Vilmorin, and Chatenay will represent the Paris Horticultural Society. Among the botanists who have signified their intention of being present are Professors Pfitzer of Heidelberg, Goebel of Munich, Kraenzlin of Berlin, Baron de Geancy of Amsterdam, and Ruys de Beerenbroek, Governor of Limburg; and Prince Anatole Kourakine, from Russia. The Jury will meet at the Casino at 10 a.m. on April 17; on Saturday they will be presented to the King, as above mentioned; at 8 o'clock in the evening a "raout" will be offered by the Municipality in the Hotel de Ville. On Sunday, April 19, at 11 a.m., the jurors and exhibitors will be received at the Bourse by the Chambre Syndicale des Horticulteurs Belges; and at 5 p.m. a banquet will be given to the jury in the *salon* of the Great Theatre. The International Committee of Botanists will be represented by Prof. Goebel, Prof. Hugo de Vries, Dr. Hua of Paris, Dr. Goethart of Leyden, and Lotsy of Buitenzorg. The first exhibition, in 1809, consisted of fifty plants, arranged on three tables in a tavern; now, 8,000 square mètres will be occupied by the exhibits. In 1850 there were twenty-nine nurseries in or in the vicinity of Ghent; in 1903 there are no fewer than 400.

HINTS TO VISITORS.

The accommodation at the principal hotels has, we understand, long been secured in advance; but those who may find a difficulty in obtaining a domicile in Ghent, will have none in finding quarters in Brussels, Bruges, or Antwerp, all within about an hour's ride of Ghent, and to all of which access by rail is easy.

For the convenience of intending visitors, we append a list of some of the principal nurseries in the vicinity of the city, together with indications of the distance from the centre of the town, and of the readiest means of reaching the desired spot. Among some four hundred establishments, it is obvious that we can only enumerate a few of the more prominent; but any one of them will be found instructive to the visitor.

Starting Point.—The Place d'Armes, in the centre of the town. Tramways in every direction. Cab-stand.

Ghent.

Charles Pynaert.—Porte de Bruxelles (the tram stops at the door). Miscellaneous collections, Azalea indica, hardy Rhododendrons and Azaleas, Palms, Cypripediums, &c.

Bernard Spae.—Coupure (facing the exhibition buildings). Palms and Araucarias.

Liévain Spae-Vandermeulen.—Boulevard du Jardin Zoologique (fifteen minutes' walk). Palms and Cycads.

Emile De Cock.—Boulevard d'Otterghem (fifteen minutes' walk from the Exhibition). Palms.

State School of Horticulture, Botanic Garden.—Mr. Ronse.

Gendbrugge.

Société Louis van Houtte père (five minutes from the stopping-place of the tram).—Hardy Greenhouse and Stove Plants, Palms, Greenhouse, and hardy Bulbs, pot Roses, &c.

D'Haene, Chaussée de Bruxelles.—(Five minutes' walk from where the tram stops). Ornamental plants of every kind, Azalea indica, Palms, &c.

De Smet frères, Chaussée de Bruxelles.—(Three minutes from where the tram stops). Palms, Araucarias, &c.

Arthur de Smet.—(Two minutes from the stopping-place of the tram.) Palms, Araucarias, Anthuriums, &c.

Fréd. Burvenich père, Dries (Gendbrugge, Nord).—Fruit trees and bushes, ornamental shrubs, &c.

Delaruye-Cardon, Chaussée de Bruxelles.—Facing the stopping-place of the tram.) Araucarias, Gloxinias, &c.

Ledeberg.

Alexis Dallière, Chaussée de Bruxelles.—(About five minutes from where the tram stops, opposite the Etabl. d'Haene.) Hot-house plants, Palms, Anthuriums, Cypripediums, &c.

Jules de Cock, Chaussée d'Hundelghem, auction sales. Five-and-twenty minutes in a cab. Plants of every variety.

Porte de Courtrai.

Société Horticole Gantoise, Chaussée de Courtrai.—The tram stops fifteen minutes' walk from the door. Palms, &c.

Porte de Bruges.

Story.—(Twenty-five minutes by tram). Palms, Araucarias, Dracænas, &c.

Porte d'Anvers (Mont St. Amand).

(Tram to the beginning of the Commune. It is better to take a cab all the way).

Edm. Vervaet et Cie.—Orchids in great variety; Cattleyas a specialty.

François Desbois.—Soft-wooded plants and Cypripediums.

Auguste van Geert (*H. J. Kuik*, successor).—Bulbs, Palms, Azalea indica, Hardy Azaleas, New Plants, &c.

Louis De Smet-Duvivier.—Greenhouse Plants, Anthuriums, Dracænas, Aroids, Orchids, &c.

Loochristy.

(The tram goes to the Pays de Waes station, thence ten minutes by rail).

Charles Vuylsteke.—Orchids of every kind; Odontoglossums and Cypripediums a specialty; Palms, Azalea indica, outdoor plants, &c.

La Pinte.

(Ten or fifteen minutes by rail from Ghent, south station).

Jules Verhoost.—Camellias, &c.

The neighbourhood of the Portes de Courtrai and de Bruges, as well as the suburbs of Loochristy, La Pinte, Meirelbeke, Wondelgheu, and Everghem, are important horticultural centres, well worth visiting by strangers. At Meirelbeke is the Orchid establishment of M. Theodore Pauwels.

SOCIETIES.

ROYAL HORTICULTURAL.

April 7.—There was again an extensive display of plants and flowers at the ordinary fortnightly meeting of the Committees at the Drill Hall, Buckingham Gate, Westminster, on Tuesday last. All of the committees had plenty of work before them, excepting the Fruit and Vegetable Committee, which had absolutely nothing before it.

The Orchid Committee recommended awards, including one First-class Certificate, one Botanical Certificate, and five Awards of Merit.

The Floral Committee had to do with a large number of exhibits, and recommended four Awards of Merit, one to a new Rose, one to a Caladium, and two others to varieties of Hippeastrums. A very fine display of these plants was made by Captain Holford; and Messrs. Veitch & Sons exhibited a few novelties.

The Narcissus Committee sat for a very long time, and considered a bewildering number of varieties, closely resembling each other. In the end, six awards of Merit were recommended to new varieties, and an Award of Merit to a species of Tulipa.

At the afternoon meeting 78 new Fellows were elected to the privileges of the Society; and an interesting paper upon "Hardy Trees and Shrubs," by Mr. Geo. Nicholson, V.M.H., was partly read by Dr. M. T. Masters, F.R.S. This lecture was appropriately illustrated by a most interesting and valuable collection of about 300 herbarium specimens, sent home by Messrs. Jas. Veitch & Sons' collector from Central China. Many of these are now in cultivation and will form the subjects of illustration in our pages. In the meantime we figure in our present issue the beautiful and extraordinary Davidia (see Fig. 98, p. 235) and a Cephalotaxus, new to gardens (fig. 93, p. 226).

Floral Committee.

Present: Charles E. Shea, Esq., in the Chair; and Messrs. C. T. Druery, F. Page-Roberts (Rev.), J. Hudson, E. Mawley, R. Dean, J. Green, A. Perry, J. Jennings, J. A. Nix, W. Howe, C. R. Fielder, Chas. Dixon, J. Fraser, C. Jeffries, J. W. Barr, H. J. Cutbush, C. E. Pearson, R. C. Notcutt, W. P. Thomson, E. H. Jenkins, M. J. James, and G. Paul.

Messrs. J. Peed & Son, West Norwood, London, S.E., made an exhibit of Caladiums, including some very choice varieties.

Messrs. Jno. Laing & Sons, Forest Hill Nurseries, London, S.E., exhibited a group of Streptocarpus of their multiflorus strain. Most of the flowers are of shades of purple, many of them being of considerable richness.

Messrs. Jas. Veitch & Sons, Royal Exotic Nurseries, King's Road, Chelsea, exhibited a group of Cinerarias "Feltham Bouquet," a cross from C. polyantha and C. multiflora; also several choice seedling varieties of Hippeastrums.

A magnificent display of Hippeastrums (Amaryllis), from Captain Holford, C.I.E., Westonbirt, Tetbury (gr., Mr. A. Chapman), was greatly admired. The plants were in the rudest health and vigour, and the varieties, which are all, or nearly all, seedlings raised in the Captain's garden, are of the most meritorious description. We took the names of Lord Bovingdon, rich crimson; Nancy, a large flower, with white ground, lined and suffused with coral-scarlet; Mafeking, a flower of great substance, with white ground, boldly marked with scarlet, Princess Osra, bright scarlet, with wide white band along the centre of each segment, and veining of white on either side; Mikado, rich velvety-crimson without a mark; Firelight, a scarlet self; Gipsy, vinous-red colour, with a white band on each segment; Field Marshall, scarlet; Lorna Doone, and Mr. Joseph Chamberlain (Gold Medal).

Messrs. Frank Cant & Co., Braiswick Rose Gardens, Colchester, made a glorious display of cut Rose blooms. The varieties shown were exceedingly numerous, but Madame Hoste, Medea, Hon. Edith Gifford, Maman Cochet, and White Maman Cochet, Maréchal Niel and William Allan Richardson were in greatest quantity, and it was noticed that Tea and Hybrid Tea varieties were much in excess of Hybrid Perpetuals (Silver-Gilt Flora Medal).

Cinerarias from Messrs. J. Carter & Co., High Holborn, London, made a brilliant show of colours, and the strain was one of much merit, owing to the size of the flowers, and their brilliancy as well as pureness of colour (Bronze Flora Medal).

Mr. H. B. May, Dyson's Road Nursery, Upper Edmonton, showed a group containing displays of Hydrangea Hortensia Thomas Hogg, Crimson Rambler Rose, the dwarf Polyantha or "buttonhole" Rose

White Pet, blooming abundantly in pots; the pink-flowered climbing Rose Leuchtstern, Gardenias, Ferns, &c. (Silver Banksian Medal).

Messrs. W. Cutbush & Son, Highgate Nurseries, London, and Barnet, Herts, had a gay ground group of forced trees and shrubs on one side of the entrance door. By the admixture of dwarfs and standards, a very pretty effect was secured. Three pot plants of Magnolia Soulangeana, in the centre, were full of opening blossoms; and the hardy Rhododendrons, in shades of yellow colour, with red-flowered Tree Pæonies, also Lilacs, Viburnum plicatum, Magnolia amabilis, Laburnums, &c., were very pretty. Messrs. Cutbush also showed varieties of Souvenir de la Malmaison and other Carnations, in pots, as well as cut flowers. Sir Chas. Fremantle, bright red; Mrs. Martin R. Smith, richest pink; and Maggie Hodgson, darkest crimson, are the finest of the Malmaison type shown (Silver Flora Medal).

Wallflowers shown in pots by Messrs. Watkins & Simpson, 12, Tavistock Street, Covent Garden, London, made a somewhat uncommon and very pretty display. The varieties were grouped together, the rich yellows being Golden King and Cloth of Gold; and the pale or sulphur yellows, Tom Thumb and Nankin yellow; Vulcan is an excellent variety of richest crimson, the flowers being of very large size, and the segments unusual width; Early Feltham is a good representative of the bronzy-red section; and less uncommon types included White Gem, which is creamy-white; Eastern Queen, having shades of bronze and pink; and Ruby Gem, with rich purple coloured flowers. Some plants of a dwarf compact growing variety of Eryesimum named "Golden Yellow," were flowering abundantly (Silver Banksian Medal).

Messrs. R. Wallace & Co., Kilnfield Gardens, Colchester, showed on this occasion a few choice varieties of Narcissus, also growing plants in flower of Fritillarias, Erythroniums, Anemone apennina, Iris bucharica, I. warleyensis, the brilliant Tulipa præstans, and T. Eichleri, most brilliant vermilion with a six-forked blotch at the base, two forks being upon each petal; Tulipa Greigi (scarlet), Muscari, &c. (Bronze Flora Medal).

Mr. Jno. Box, of West Wickham Nurseries, Croydon, again showed a collection of Sempervivums, and Saxifragas, similar to those shown a fortnight previously (Bronze Banksian Medal).

Camellias cut from plants growing in the open garden of Sir T. F. Barry, Bt., M.P., St. Leonard's Hill, Windsor (gr., Mr. Robt. Brown), were conclusive evidence that the Camellia succeeds well as a hardy plant in Berkshire. Many varieties were shown (Silver Banksian Medal).

A display of alpine and other hardy flowering plants from Messrs. Thos. S. Ware (1902), Ltd., Feltham, Middlesex, contained a very large number of species; varieties of Primula Sieboldi afforded most colour, but there were pans containing varieties of the modest Aubrictia, also Shortia galacifolia. There were many Narcissus flowers, the singular Tropæolum tricolorum, Sarracenia flava, S. purpurea, &c. (Silver Banksian Medal).

A variety of Viola named Royal Sovereign, shown by Messrs. Geo. Stark & Son, Great Ryburgh, Norfolk, is a very fine flower, wholly yellow coloured, and possessing much substance. The flowers shown had a few "rays," but we were informed that these are quite absent from later blooms.

Thalictrum flavum aureum "Illuminator," shown by Mr. B. Ladhams, The Shirley Nurseries, Southampton, is a strong growing variety, with golden-coloured foliage.

From the Guildford Hardy Plant Company, Mill Mead, Guildford, came a very pretty exhibit of alpine plants, amongst which some varieties of Iris pumila, and the popular double Arabis, Thalictrum anemonoides, and other species were noticeable (Bronze Flora Medal).

Mr. Geo. Mount, Exotic and Rose Nurseries, Canterbury, exhibited a group of beautiful Roses as cut blooms, of the highest excellence. Some were staged in the ordinary show-boxes, and others in bottles, being blooms cut with long stems. Among the finer blooms observed were Ulrich Brunner, Mrs. John Laing, Mrs. W. J. Grant, Niphetos, Caroline Testout, Captain Heywood, the new variety Liberty, a flower of deep crimson—a capital buttonhole or decorative flower (Silver Flora Medal).

The Rt. Hon. Lord Rothschild, Tring Park, Tring (gr., Mr. E. Hill), exhibited a large group of Moss Roses, chiefly of the common variety. Besides these there were White Bath, the better flowered plants; Little Gem, a dwarf plant with double pink flower; and Reine Blanche. An interesting group of Roses, which gardeners find not easy to force into bloom (Silver-gilt Banksian Medal).

Messrs. R. & G. Cuthbert, Southgate Nurseries, Middlesex, showed a floor group of hardy Azaleas in profuse bloom and in much variety. Of varieties remarkable for colouring were, William III., of red, orange, and yellow tints, a Ghent variety; and Fanny, belonging to the same section. Among those of the A. mollis section there were, Dr. Reichenbach, of a rich yellow tint and a large flower; Elizabeth, a light red tint; and Alphonse Lavallée, having flowers of a reddish-orange colour. A novelty was noted in Azalea Yodogama, a Japanese variety, having small, light purple coloured flowers, valuable for its contrast in colour with other varieties; Azalea rustica, fl.-pl.; Apelles, is a showy and semi-double flower. Plants of Lilac Marie Legraye, were well shown as dwarf bushes and standards in the group (Silver Banksian Medal).

Messrs. Hugh Low & Co., Bush Hill Park Nurseries, London, N., showed a group of Palms ranging in height from 3 feet to 10 feet, including Kentia Belmoreana, K. Fosteriana, Cocos Weddeliana, Chamærops stauracantha (a striking species), Phœnix rupicola, &c. The group was bordered with a few flowering plants, such as Choisya ternata, Hydrangea Hortensia, and Cytisus racemosus (Silver Banksian Medal).

Mr. K. Drost, Kew Nursery, Richmond, Surrey, staged a number of plants of Lilium longiflorum, dwarf, and well bloomed, being very early.

Mr. G. Reuthe, The Hardy Plant Nursery, Keston, Kent, showed cut blooms of varieties of Rhododendron arboreum in colours, ranging from white to deep crimson. He also showed a small number of Narcissus, such as Lulworth, Bullfinch, Flamingo, Gloria Mundi, Tomtit, Dorothy York, Peach, &c.; and a bunch of flowers of Embothrium coccineum partially expanded.

Mr. C. Turner, Royal Nurseries, Slough, showed the new Polyantha Rosa Madame N. Levavaseur, having smallish purplish-rose-coloured flowers, with a white centre. The plants formed neat, floriferous bushes, 1 to 1½ ft. high, and very effective as a bedding Rose (Award of Merit). Mr. Turner also exhibited in quantity flowering branches of Pyrus japonica in bloom, in several varieties; also a basketful of plants of Viola Constancy, a light-yellow-coloured self, that flowers throughout the year.

Opuntias, Mammillarias, Melo- and Echinocacti were shown in considerable variety by Mr. Richard Anker, 54, George Street, Baker Street, W. He also exhibited glass cases for placing in apartments, suitable for the display of small-growing Cacti, Filmy Ferns, &c.

Messrs. Jno. Waterer & Sons, Ltd., American Nurseries, Bagshot, Surrey, exhibited a group of trees lifted from the open ground These included excellent standard Hollies and Portugal Laurels; also choice varieties of Conifers, including Thuya gigantea var. zebrina, Taxus Standishi, &c.; also English-grown Rhododendron (Azalea) mollis, freely flowered plants of Prunus sinensis, fl.-pl., &c. (Silver Banksian Medal).

Among flowers in season were trusses of Rhododendron blooms from the Earl of Ilchester's garden, Abbotsbury, Dorsetshire; and a magnificent branch of Waterer's Cherry, from Mr. Leopold de Rothschild's garden, Gunnersbury House, Acton.

Messrs. H. Cannell & Sons, Swanley, Kent, showed a fine group of flowers of zonal Pelargoniums, the varieties being remarkable for the size and brilliance of the flowers (Silver Banksian Medal).

Messrs. G. Cotton & Co., Ltd., Victoria Works, Holmes Chapel, Cheshire, showed models of the Fuel Economiser, as well as those of double-cylinder flues, which greatly add to the heating powers of any kind of boiler, and save in coal 25 to 35 per cent. A boiler furnished with Mr. Cotton's additional plate is equivalent to three boilers for heating purposes in the place of one.

Awards of Merit.

Caladium Mosiamedes.—This variety has very large handsome leaves, which measure about 2 feet in length, and 19 inches across. The ground colour appears to be white, mottled with green, and occasionally marked with red, shown by Messrs. W. Bull & Sons, 536, King's Road, Chelsea, London.

Hippeastrum "Apple Blossom."—The name of this variety was suggested probably by the delicate blush pink colour which prevails in the flowers, relieved in the upper segments by deep, red coloured lines. It is a variety representing a new "break" in respect of colour, and in size and form it is satisfactory. From Messrs. Jas. Veitch & Sons.

Hippeastrum Black Prince.—An exceedingly large, widely expanded flower of deep crimson. One of the best of this type. Shown by Captain Holford, Westonbirt.

Rose Madame N. Levavasseur.—This Rose was shown by Mr. Chas. Turner, Royal Nurseries, Slough, who had a group of plants in pots, the plants being about a foot in height, and bearing abundance of clusters of crimson flowers, almost identical with those of Turner's Crimson Rambler. It has consequently been described as a dwarf Crimson Rambler, which, although it constitutes a contradiction of terms, will convey to the reader a good idea of the characteristics of this novelty.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (hon. sec.), de B. Crawshay, R. Brooman-White, W. Cobb, J. Douglas, F. Wellesley, F. A. Rehder, J. W. Potter, H. T. Pitt, J. Charlesworth, F. W. Ashton, E. Hill, T. W. Bond, A. A. McBean, W. A. Bilney, W. Boxall, W. H. Young, W. H. White, H. Little, J. G. Fowler, H. M. Pollett, and H. Ballantine.

Again there was a fine show, especially of Odontoglossums.

Jeremiah Colman, Esq., Gatton Park (gr., Mr. W. P. Bound), was awarded a Silver Flora Medal for a fine group of Phaius × Norman, Cymbidium eburneum, C. Lowianum concolor, Cœlogyne cristata alba, Lycaste Skinneri alba, and delicata; Diacrium bicornutum, Cattleya intermedia alba, Odontoglossums, and scarlet Cochlioda Noezliana.

Sir Trevor Lawrence, Bart., Burford (gr., Mr. W. H. White), staged a very pretty group of botanical Orchids, Masdevallias, &c. Among them were Pleurothallis Grobyi, Masdevallia xipheres of the M. muscosa class, four varieties of M. × igneo-Estradæ, M. caudata xanthocorys, M. × Gelengiana, and other Masdevallias; Epidendrum Endresii, E. × Ellisiana, E. × elegantulum leucochilum, Cirrhopetalum fimbriatum, Bulbophyllum siamense, Maxillaria luteo-alba, and three plants of the rare Angræcum fastuosum (Silver Banksian Medal).

Captain G. L. Holford, Westonbirt (gr., Mr. Alexander), was awarded a Silver Banksian Medal for a select group composed of remarkably well-grown Odontoglossums, of which the fine specimen of O. × Adrianæ "Lady Wantage" secured both an Award of Merit and a Cultural Commendation. Also in the group were O. Pescatorei "Westonbirt variety," with a branched spike of flowers as large as those of O. crispum; O. × Andersonianum Holford's variety, a large and finely marked flower; good O. crispum; Lælio-Cattleya × Gottoiana, with six flowers; the richly-coloured L.-C. × callistoglossa excelsa; a fine Cattleya Schroderæ, with a purple blotch on the lip; good Miltonia Roezli, &c.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr., Mr. Stables), secured a Silver Banksian Medal for a very effective group of Odontoglossums set up over scarlet Sophronites and Maidenhair Ferns. The Odontoglossums were fine forms of O. crispum and O. triumphans, the latter being of extraordinary size and beauty.

Messrs. Jas. & A. A. McBean, Cookesbridge, were awarded a Silver Banksian Medal for an excellent group of very well-grown Odontoglossums.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), staged a group in which the centre of attraction were spotted Odontoglossums, the fine O. c. Persimmon securing the only First-class Certificate of the day, and O. c. Alpha an Award of Merit. Also fine were O. c. Abner Hassell, and O. c. Stanley J. Pitt. Also in the group were Cattleya Schroderæ twickenhamensis, and Odontoglossum × Adrianæ.

Baron Sir H. Schroder, The Dell, Egham (gr., Mr. H. Ballantine), showed a collection of cut spikes of rare Odontoglossums, among them being fine O. crispum, the rare O. lilliflorum, O. Schillerianum, O. × Adrianæ, &c.

Sir Frederick Wigan, Bart. (gr., Mr. W. H. Young), showed the very fine Cattleya Lawrenceana Hyeana and C. Trianæ Amesiana.

Frank A. Rehder, Esq., Gipsy Hill (gr., Mr. Norris), showed Dendrobium × Margaret, a curious natural hybrid with white flowers tipped with rose, and a grand specimen of D. nobile Ballianum.

Messrs. Jas. Veitch & Sons, Chelsea, showed Dendrobium × Aspasia var. pallida, and D. × Wiganiæ grandiflorum.

W. P. Burkinshaw, Esq., Hessle, near Hull (gr., Mr. Barker), sent Lælio-Cattleya × Digbyano-Mossiæ "Hessle" variety, a large flower with fringed petals and lip.

Messrs. Charlesworth & Co., Heaton, Bradford, sent a collection of fine hybrid Orchids, comprising the new and beautiful Cattleya × Empress Frederick, "Heaton variety" (Mossiæ × aurea), a large, richly-coloured and fragrant flower; Lælio-Cattleya × Mercia (L. flava × C. Schroderæ alba), with pretty primrose-coloured flowers, and a buttercup-yellow disc to the lip; the very handsome L.-C. × Haroldiana; a new bright yellow form of Lælia × Briseis (harpophylla × purpurata), Cypripedium × Berkleyanum (bellatulum × Boxalli), and the handsome Lælio-Cattleya × Dora (Phœbe × Schroderiana), a very nice Apricot-yellow flower, with ruby-red front to the lip.

Geo. Singer, Esq., Coundon Court, Coventry (gr., Mr. Collier), showed a good Odontoglossum × Adrianæ.

Messrs. Stanley, Ashton & Co, showed Odontoglossum Cervantesii roseum.

Francis Wellesly, Esq., Westfield, Woking (gr., Mr. Gilbert), showed a good specimen of Cattleya intermedia nivea, white, with a pink tint on the lip.

J. S. Moss, Esq, Bishop's Waltham, showed a singular-looking variety of Odontoglossum × Adrianæ.

A resolution was passed by the Committee that obviously mutilated Orchids (number of flowers reduced), with a view to securing larger flowers, should not in future be adjudicated upon.

Awards.

First-class Certificates.

Odontogla sum crispum "*Persimmon*," from H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr, Mr. Thurgood). One of the front rank varieties of the favourite spotted Odontoglossums. Flowers, 4½ inches across, and broad in all its parts, white, tinted with purple at the back, and the surface of each segment having clusters of rich reddish-purple blotches in the middle. Petals and lip fringed.

Awards of Merit.

Odontoglossum × *Adrianæ* "*Lady Wantage*." — From Captain G. L. Holford, Westonbirt (gr., Mr. Alexander). A very fine variety, with large, pale yellow flowers, heavily marked with chestnut-red. Lip white, finely crimped, and fringed, and spotted with brown. A grandly grown plant, with a branched spike of twenty flowers, was shown, and secured for the grower (Mr. Alexander) a Cultural Commendation.

Odontoglossum triumphans Crawshayanum.—From De B. Crawshay, Esq. (gr., Mr. Stables). Flowers very large, rich yellow, heavily barred with dark brown.

Odontoglossum crispum Alpha, from H. T. Pitt, Esq. (gr., Mr. Thurgood).—A large Wilckeanum-like flower, very close to O. c. Stevensii. Flowers white, closely spotted with brown.

Cypripedium × *Mrs. Pitt* (Godefroyæ leucochilum × nitens), from H. T. Pitt, Esq.—Flowers cream coloured; and marked with purple; lip light yellow.

Masdevallia × *Veitchiano-Wageneri*, from Sir Trevor Lawrence, Bart. (gr., Mr. W. H. White).—A very pretty hybrid with reddish Apricot-yellow flowers.

Botanical Certificate.

Masdevallia xipheres, from Sir Trevor Lawrence, Bart. (gr., Mr. W. H. White).—A singular-looking, purple-flowered species allied to M. muscosa.

Cultural Commendation

to Mr. Norris, gr. to Frank A. Rehder, Esq., for Dendrobium nobile Ballianum with sixty-seven flowers.

Narcissus Committee.

Present: H. B. May (Chairman), Miss E. Willmott, and Messrs. W. Poupart, W. T. Ware, P. R. Barr, R. W. Wallace, A. R. Goodwin, Rev. S. Eugène Bourne, C. T. Digby, J. D. Pearson, J. Walker, W. Copeland, A. Kingsmill, G. S. Titheradge, Rev. G. Engleheart, and R. Dean.

There were several large and comprehensive exhibits of these flowers, which for the most part were in good condition. Very naturally, the interest of the visitors was keen in respect to the newer varieties, and to these we confine our remarks more particularly.

Probably the largest array of these flowers came from Miss F. W. Currey, Lismore, Ireland. In this set we remarked such exquisite flowers as Maggie May, the triumph of the white Leedsii group; and Vesuvius, Lucifer, Firebrand, Flambeau, all highly coloured at the crown, if in varying degree. Duke of Bedford, Lady M. Boscawen, a sort of bicolor Sir Watkin, together with White Queen, which is a pure white Maggie May—almost, formed a sort of central group amid the greater host (Silver-gilt Flora Medal).

In the group from Messrs. Barr & Sons, Covent Garden, novelties again held sway, though in this case the strength lay in the Grand Trumpeters, as the Giant Ajax were once known. Here we noted the inimitable white Ajax, Peter Barr; Hulda, with finely proportioned and well-expanded crown, of soft citron shade; the giant Monarch and Weardale Perfection; Sceptre, a fine Incomparabilis, with a rich cup; Queen Christina, a large bicolor; and Hatfield Beauty, a self Ajax. These, with Gloria Mundi, Maggie May, White Lady, comparable to a finely-purified Catherine Spurrell, and Incomparabilis perfectus were among the leading sorts.

Mr. S. B. Kendall, South Kensington, showed superb examples of his King Alfred, a noble golden flower on a stout shaft nearly 2 feet long: and Queen Alexandra, A. Leedsii probably, with spreading orange cup.

Messrs. Pope & Sons, King's Norton, had a fine yellow Ajax, "King's Norton" (see Novelties), with a few other varieties.

The set of seedlings from the Rev. G. H. Engleheart, Dinton, Wilts, were, as usual, a centre of attraction, several receiving recognition from the Committee; of other varieties, Citron we think remarkable for its delicate colouring and gracefulness, as also in its parti-coloured crown of citron and sulphur. The variety, too, is as though deeply guffered at the base of the crown, and in other directions shows agreeable changes; Spark, Lancer, with red cup; Fusilier, and Splendour, were other good things. Argent and Plenipo are nearly double, and belong to N. incomparabilis. For other kinds see Awards.

Mr. J. Kingsmill, Sharrard, Ripon, also contributed good kinds, e.g., Bennett-Poë, a fine trumpet variety; Sea Gull, Dante, a large poeticus; Lucy Gilbert, and Sirius, a good incomparabilis.

Mr. C. Dawson, Rosemorran, Penzance, also showed choice varieties, of which we noted White Queen, Horace, a very large and superb poeticus; White Lady, Cassandra, poeticus var., very fine; Will Scarlett, with its dominating finely-coloured cup; and Beacon, of the incomparabilis group. Many others of merit were in this set, but space forbids more than a passing note of the leading varieties.

Awards.

The following received an Award of Merit:—

Narcissus Gold Eye.—White, with Leedsii like perianth segments, the large, distinct, lemon-cup tinted orange.

Narcissus Red Disk.—An incomparable kind, with widely-expanding crown of orange, with lemon-coloured base.

Narcissus Symmetry.—A medium-sized incomparabilis, with flattish cup of orange-scarlet and lemon.

Narcissus Body Guard.—In this the ovate perianth segments are of a creamy tone, the widely-expanding cup being of a good lemon tint.

All of the above were shown by the Rev. G. H Engleheart, Dinton, Wilts.

Awards of Merit.

Narcissus Viscountess Falmouth. — A very distinct variety, intermediate between Maggie May and some of the large Leedsii kinds, but the cup and crown is distinctly prolonged and cylindrical. The painted segments are somewhat a weakly feature of the variety. From Miss Willmott, Warley Place, Essex.

Narcissus King's Norton.—This is but another good addition to the yellow self class, a bold, vigorous flower of the largest size, and of great stature. It is certainly very imposing, quite a giant in its way. Exhibited by Messrs. Pope & Sons, King's Norton, near Birmingham.

Tulipa præstans.—A new species from Bokhara. The flowers are large, the segments pointed somewhat, and they carry the nearly vermilion-scarlet shade in a uniform tone throughout. A striking feature is the obscurely pubescent character of the arching ornate acuminate leaves. Internally, the lower half of the stamens is the same colour of the segments. The plant is nearly 1 foot high. Exhibited by Miss Willmott, Warley Place, and by Messrs. Wallace & Co., Colchester.

THE CORNWALL DAFFODIL AND SPRING FLOWER SOCIETY'S SHOW AT TRURO.

March 31.—Notwithstanding the blustering winds and driving rain-storms that continued almost without intermission during the whole of the month of March, and worked havoc with the blossoms that expanded their petals in the open air, there was a goodly show of flowers in the spacious Market House at Truro on the occasion of the opening of this exhibition. A fine display of Narcissi was provided, which included many unnamed seedlings not in commerce, some of which were of a high order of merit. Rhododendrons and Camellias, which, with their bright colours, add so much to the attractiveness of the show, were, owing to the inclement weather experienced, scarcely so fine as last year, but formed a welcome addition to the exhibits. Violets were shown in quantity, and the winning stands of Polyanthi and Primroses were exceptionally good. The judge of the Narcissus classes framed his decisions on an ideal standard of excellence that was not in all cases attained. We have not space to give the list of awards, but must content ourselves with stating that in the class for the best collection of not less than thirty or more than forty varieties of Daffodils, Magni-coronati, Medio-coronati, and Parvi-coronati, the 1st prize was awarded to Mr. J. C. Williams, with a fine stand including Firebrand, a striking flower of the Parvi-coronati section, with pale primrose perianth, and spreading cup of glowing orange-scarlet; Snowdrop, Monarch, Jacko, King Alfred, Madame de Graaff, Golden Bell, Weardale Perfection, Golden Eagle, Incognita, Homespun, a pretty yellow flower; White Queen, Cardinal, Homer, White Lady, Cassandra, and numerous unnamed seedlings. 2nd prize, Lady Margaret Boscawen, with King Alfred, Waterwitch, Lovelace, and Lucifer, very good. 3rd prize, Rev. A. T. Boscawen, in whose stand Oriflamme, a small flower, with creamy perianth, and bright orange-red cup, was especially noteworthy.

Amongst nurserymen's exhibits, Messrs. Barr & Sons staged a fine collection of Narcissi, amongst which were the grand new white trumpet Peter Barr, and Henry Vilmorin, a particularly good novelty of the Magni-coronati section, with cream-white perianth and pale sulphur perianth.

The Devon Rosery, Torquay, made a fine display of pot Roses in flower, and some hundreds of cut blooms; also showing a good selection of the newer Violets.

Messrs. Robert Veitch & Son, Exeter, had flowering shrubs in quantity, staging Rhododendrons, Acacias, Correas, Magnolias, and Boronias, as well as the new Loropetalum chinense, Primula kewensis, and Jasminum primulinum, besides a collection of rock-plants.

Mr. G. Reuthe, Keston, Kent, showed many fine Erythroniums, Fritillarias, Saxifrages, Ramondias, and other dwarf plants.

Messrs. Treseder & Co., Truro, contributed Tree-Ferns, Palms, and foliage subjects.

DORCHESTER.

A Society has been formed at Dorchester with the title of Dorchester and District Gardeners' and Amateurs' Mutual Improvement Society. The meetings are held in the Magistrates' Room, the Corn Exchange, Dorchester, on the last Wednesday evening in each month at 7.30. The President is Capt. Dymond; among the Vice-Presidents we note the names of S. D. Allen, Esq., J.P., Mayor of Dorchester; Judge Philbrick, an enthusiastic orchidist; G. Floyer, Esq. J.P.; Rev. Canon Rowland Hill, and C. S. Prideaux, Esq. The Hon. Secretary and Treasurer is Mr. E. Nutting.

The first meeting occurred on January 28; at that on March 25, the subject of the propagation of plants by seeds and cuttings was treated of by Mr. W. H. Stone, gr., Brooklands; and the last for the half-year, which will take place on Wednesday, June 25, will take the form of an excursion to the Earl of Ilchester's garden at Abbotsbury.

EALING & DISTRICT GARDENERS' MUTUAL IMPROVENENT.

April 1.—The annual dinner of this society was held at the Drayton Court Hotel on the above date, the Mayor of Ealing occupying the chair, and Mr. Richard Dean, the vice-chair, there being a good attendance of members. The Mayor, Mr. H. W Peal, who is a generous patron of horticulture, takes a great interest in his garden, and is one of the principal exhibitors at the shows of the local horticultural society, bore testimony to the value of gardeners' societies; and by way of giving a stimulus to the interest taken in the work of the society by the members, promised some special prizes for subjects to be exhibited at some of the meetings. He also, as Chairman of the Technical Education Committee of the Borough Council, intimated his intention to take steps so that the members of the gardeners' society might derive advantages from the course of instruction given. In responding to the toast of success to the society, Mr. W. Roberts, the secretary, gave statistics showing that it is in a flourishing condition, and mentioned the fact that the papers read are chiefly contributed by members. Keen discussion followed. Other persons present as guests also promised special prizes.

Obituary.

W. B. KELLOCK.—On April 3, at 94, Stamford Hill, William Berry Kellock, M.D., F.R.C.S., aged 82. The older Fellows of the Royal Horticultural Society will remember Dr. Kellock as an energetic member of the Council, with his friend and associate, Dr. Denny, in the old South Kensington days. Dr. Kellock had a good collection of Agaves and other plants. He was greatly respected by those who had the pleasure of knowing him.

SIR CHAS. ISHAM, BART. — Just as these pages are passing through the press, the death is announced of Sir Chas. Isham in his eighty-third year at The Bungalow, Horsham. An account of the remarkable rockery which deceased built at Lamport Hall, near Northampton, was published in the *Gardeners' Chronicle*, September 25, 1897.

MARKETS.

COVENT GARDEN, April 8.

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Azaleas, per doz. bunches	2 0- 4 0
— mollis, per bunch	1 0 —
Bouvardias, per dozen bunches	6 0- 8 0
Callas, per dozen	4 0- 6 0
Camellias, p. doz.	2 0- 3 0
Carnations, per bunch	1 0- 3 0
Chrysanthemums, per. bunch	1 0- 2 0
Daffodils, p. doz. bunches	1 0- 4 0
Eucharis	2 0- 3 0
Ferns, Asparagus, per bunch	1 0- 2 6
— French, per doz. bunches	0 4- 0 6
— Maidenhair, doz. bunches	4 0- 6 0
Freesias, per doz. bunches	2 0- 3 0
Gardenias, p. box	1 6- 3 0
Gypsophila, bunch.	0 6 —
Hyacinths, doz. bunches	2 0- 6 0
Iris, per bunch	1 0 —
Lilac, White	2 0- 4 0
Lilium album, per dozen blooms	1 6- 2 6
— auratum, per bunch	3 0- 4 0
— longiflorum, per bunch	4 0- 7 0
Lily of the Valley, p. doz. bunches	4 0- 9 0
Marguerites, yellow, per dozen bunches	2 0- 2 6
Mignonette, per dozen	2 0- 3 0
Mimosa, per bunch	0 6- 1 0
Narcissus, dozen bunches	1 0- 3 0
Orchids: Cattleya, dozen blooms	12 0-15 0
— Dendrobiums, per dozen	2 0- 3 0
— Odontoglossums, dozen	2 0- 4 0
Pelargoniums, zonal, dozen bunches	3 0- 6 0
— White	3 0- 6 0
Primroses, dozen bunches	0 6- 1 0
Roses, Mermet	3 0- 6 0
— various, per bunch	1 0- 4 0
— red, p. bunch	2 0- 3 0
— white, bunch	1 0- 2 0
— pink, bunch	2 0- 5 0
Smilax, per dozen trails	1 6- 2 6
Stocks, per dozen bunches	2 0- 4 0
Tulips, all colours, per bunch	0 6- 1 0
Violets, Parma, per bunch	1 0- 2 0
Wallflowers, per dozen bunches	3 0- 3 6

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Adiantums, doz.	4 0- 8 0
Aralias, per doz.	4 0- 8 0
Arbor Vitæs, doz.	9 0-18 0
Aspidistras, doz.	18 0-36 0
Aucubas, per doz.	4 0- 8 0
Azaleas, each	2 0- 4 0
Begonia Gloire de Lorraine	6 0-12 0
Callas, per dozen	4 0- 8 0
Cinerarias, p. dz.	4 0- 8 0
Crocus, per box	1 0- 1 6
Crotons, per doz.	12 0-24 0
Cyclamens, p. doz.	6 0-18 0
Cytisus, per dozen	6 0- 9 0
Daffodils, p. doz.	4 0- 6 0
Deutzia	8 0-12 0
Dracænas, variety, dozen	12 0-48 0
Ericas, per dozen	8 0-18 0
Euonymus, vars., per dozen	4 0- 6 0
Ferns in variety, per dozen	4 0-30 0
— Japanese Ball, each	1 6 —
Ficus elastica, doz.	9 0-24 0
Hydrangeas, doz.	12 0-15 0
Herbaceous and Perennial Plants in variety, box	1 0- 2 0
Hyacinths, p. doz.	6 0-10 0
Lilium longiflorium, per doz.	12 0-21 0
Lilac, pots, each	2 0- 3 6
Lily of the Valley, pots	6 0-10 0
Lycopodiums, dz	4 0- 5 0
Marguerites, doz.	6 0-12 0
Mignonette, doz	6 0- 8 0
Orange-trees, each	3 0- 7 6
Palms, var., each	3 0-20 0
Pelargoniums, Scarlet	4 0- 8 0
Pteris tremula, p. dozen	4 0- 8 0
— Wimsettii, doz.	4 0- 8 0
— major, per doz	4 0- 8 0
Rose Trees, p. dz.	9 0-18 0
Solanums, p. doz.	6 0- 8 0
Spiræas, per doz.	4 0- 8 0
Tulips, red, p. box	1 0- 2 0
— white, p. box	1 0- 2 0
— yellow, p. box	1 0- 2 0
— all colours	1 0- 2 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Apples, Californian, cases	10 0-12 0
— American, per barrel	12 0-15 0
— Australian, per case	10 0-16 0
Bananas, bunch	8 0-12 0
— loose, dozen	1 0- 1 6
Cobnuts, per lb	0 3 —
Figs, per dozen	6 0-12 0
Grapes, Belgian, per lb.	2 0- 3 0
— Hamburgh, lb.	4 0- 6 0
Grapes, Almeria, per doz. lb.	4 0- 6 0
— Colman, A., lb.	3 0- 4 0
— — B., per lb.	1 6- 2 6
Lemons, per case	9 0-12 0
Lychees, packet	1 0 —
Melons, each	4 0- 6 0
Oranges, case	9 0-14 0
— Tangierines	2 6 —
Pines, each	3 0- 4 0
Strawberries, A., per lb.	3 0- 5 6
— B., per lb.	1 6- 2 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Artichokes, Globe, per dozen	1 6- 2 0
— Jerusalem, p. sieve	0 9- 1 0
Asparagus, sprue, per bundle	0 9 —
— Paris Green	5 0 —
— English, per bundle	5 0 —
Beans, dwarf, lb.	0 10-1 0
— broad, per flat	3 0 —
— Channel Is. lb.	0 10-1 0
— Madeira, bkt.	2 0 —
Beetroots, bushel	1 0- 1 3
Cabbages, per bag	1 6 —
— per tally	2 0- 3 0
Carrots, doz. bun.	1 6- 2 0
— bag (washed)	1 6- 2 6
Cauliflowers, per dozen	1 6- 2 6
Celery, per dozen bundles	4 0- 8 0
Chicory, per lb.	0 3 —
Cress, per dozen punnets	1 3 —
Cucumbers, doz.	2 6- 4 0
Endive, per doz.	1 6- 2 0
Garlic, per lb.	0 3 —
Horseradish, foreign, p. bunch	1 3- 1 8
Leeks, per dozen bunches	1 0 —
Lettuces, Cabbage, per dozen	1 0- 1 3
Lettuce, Cos, doz.	3 0- 4 0
Mint, dozen bun.	3 0- 4 0
Mushrooms, house, per lb.	0 10 —
Onions, per bag	5 0 —
— English, cwt.	5 0 —
— foreign, case	6 0- 6 6
— picklers, per sieve	2 6- 3 0
Parsley, per doz. bunches	1 0- 1 6
— sieve	0 9- 1 0
Parsnips, per bag	1 0- 1 6
Peas, per flats	3 0 —
— framed, per lb.	1 0 —
Potatos, per ton	7 0-15 0
— New Teneriffe, per cwt.	10 0-14 0
— New, Kidney, Frame, p. lb.	0 3½-0 4½
Radishes, p. doz.	0 4- 0 8
Rhubarb, Yorks.	0 6- 0 9
— outdoor	1 6- 2 6
Salad, small, punnets, per doz.	1 3 —
Seakale, per doz. punnets	9 0-12 0
— natural, doz. punnets	7 0-10 0
Shallots, per doz.	0 2 —
Spinach, per bushel	2 0- 2 8
Tomatos, Canary, dceps	2 0- 4 6
— English, new, per lb.	1 6- 2 0
Turnips, p. dozen	1 6- 2 0
— bags	1 0- 2 0
— new, bunch	0 8- 0 9
Watercress, per dozen bunches	0 6 —

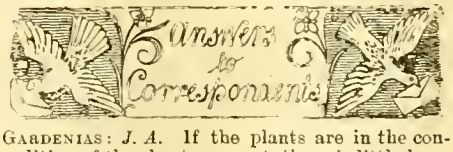
REMARKS.—Cape fruits, Grapes, 6*s.* to 14*s.*; Pears, 8*s.* to 14*s.*; Plums, 6*s.* to 10*s.* per case. Grape-Fruits per case 12*s.*; Mangoes, per doz. 4*s.*; Californian Pears, Easter Beurré, per case of 40, 14*s.* A quantity of green Grapes in cross-handled baskets of about 9 quarts, 2*s.* sprouting Broccoli, 6*d.* to 1*s.* per bag; Tasmanian Apples in variety, per case 8*s.* to 12*s.*

POTATOS.

Various samples, 70*s.* to 95*s.* per ton: Dunbars, red soil, 105*s.* to 115*s.* Seed Potatos in variety, prices on application. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

GLASGOW, *April 7.*—The following are the averages of the prices during the past week:—Apples, American Baldwins, 14*s.* to 18*s.* per barrel; do., Ben Davis, 15*s.* to 17*s.* do; do., Greenings, 14*s.* to 18*s.* do.; do, Canadian Baldwins, 14*s.* to 20*s.* do.; do., Greenings, 15*s.* to 20*s.* do; do, Spies, 20*s.* to 28*s.* do.; do., various, 12*s.* to 20*s.* do; Californian Newtown Pippins, 12*s.* to 14*s.* per case; Oranges, Valencias, ordinary, 420's, 8*s.* to 9*s.* 6*d.* per box; large 420's, 10*s.* to 12*s.* 6*d.* do.; extra large 420's, 12*s.* to 15*s.* do.; 714's, 10*s.* to 13*s.* do.; Lemons, 4*s.* to 5*s.* per box, and 7*s.* to 12*s.* per case; Grapes, Scotch, 2*s.* 6*d.* to 3*s.* 3*d.* per lb.; do., English, 2*s.* to 3*s.* do.; do., Almeria, 12*s.* to 20*s.* per barrel; Mushrooms, 1*s.* 4*d.* per lb.; Onions, Valencia, 6*s.* 6*d.* to 8*s.* 6*d.* per cwt.



GARDENIAS: *J. A.* If the plants are in the condition of the shoot you sent, there is little hope of restoring them to health. Something is radically wrong with the cultivation. Kindly send a plant for examination.

MUSHROOMS: *Manager.* Your Mushrooms are attacked by a parasitic fungus, which has caused them to rot. The stalks are also eaten, perhaps by woodlice. We fear you can do nothing but clear out the old and make a new bed.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—E. W.* 1, Nandina domestica, a greenhouse plant with you; 2, Cyrtanthus McKennii.—*Penrose.* Pelargoniums; we are not able to name garden varieties of these plants; send them to some specialist.—*M. B.* Kniphofia Tucki, Baker, was described in the *Gardeners' Chronicle*, 1893, xii., 68; Kalanchoe marmorata was described in the *Gardeners' Chronicle*, 1892, xiii., 300; *Botanical Magazine*, 7333.—*J. H. C.* Bifrenaria Harrisoniæ, often called Lycaste Harrisoniæ.—*F. H. A., Cheshire.* Dendrobium Bancroftianum, referred by some authorities to D. speciosum Bancroftianum; the habit of the plant, however, is very different from that of D. speciosum. You send a fair specimen, and therefore it is easy to determine. Most others who send specimens think a leaf, a single flower, or a dead pseudo-bulb quite sufficient.—*F. J. F., Surrey.* 1, Dendrobium fimbriatum oculatum; 2, D. Devonianum; 3, D. suavissimum; 4, Rodriguezia pubescens, often called Burlingtonia; 5, Graptophyllum hortense, called Caricature-plant, because the variegation often forms resemblances to grotesque faces.—*G. B. Milne-Redhead.* Potentilla splendens, Pulmonaria mollis.—*J. M.* Ruscus racemosus, the Alexandrian Laurel, a native of Portugal, Greece, and neighbouring countries.—*J. B.* 1, Sedum corsicum; 2, Sedum carneum variegatum; 3, Herniaria glabra; 4, Saxifraga hypnoides.—*E. Seymour.* 1, Choisya ternata. We cannot name the Azaleas or Rose.—*T. H.* 1, Retinospora species, which we cannot tell from the specimen sent, which seems to have been grown under glass; 2, Centradenia rosea; 3, Forsythia suspensa.—*C. H.* 1, Codiæum trilobum; 2, Codiæum angustifolium maculatum; 3, Codiæum Weismanni; 4, Codiæum variegatum.—*Amateur.* 1, Cyrtodeira fulgida; 2, Hibiscus rosa sinensis; 3, Begonia nitida alba; 4, Peperomia Verschaffeltii; 5, Maranta Massangeana; 6, Acalypha tricolor; 7, Mesembryanthemum cordifolium variegatum.

NOMENCLATURE: *B.* It would occupy too much of our space to give you a full explanation of the matters you refer to. For your non-botanical purposes the names used in gardens will answer your purpose, and need not be changed unless they serve to perpetuate decided blunders like "Arum Lily," or "Geranium," when Pelargonium is intended. On the other hand, we think you will do well to continue to say Azaleas, for it is merely a matter of individual opinion whether they should or should not be included under Rhododendron. For similar reasons, for garden purposes, you may use the word Hepatica rather than Anemone.

RICHARDIA AFRICANA: *De Graaf Bros.* No doubt you are correct in speaking of Childsiana as a variety, as it is distinct from the ordinary form. Technically it should, as you say, be called Richardia africana var. Childsiana.

SELECTION OF POTATOS: *H. H. O.* The varieties selected by yourself are most suitable for a gentleman's garden; but you might substitute British Queen for Pink Beauty of Hebron, which is not sufficiently distinct from the white variety. The varieties in the other selection have doubtless been chosen for their heavy cropping qualities, and are more suitable for cultivation on farms.

YOUNG CUCUMBERS DYING BACK FROM THE TIP: *F. W. M.* The usual cause of this malady is too much moisture at the root, and a deficiency of bottom-heat. For winter and late spring forcing, we would advise a bottom-heat of 75° to 80°, water (tepid) being applied when the soil is getting dry, and not at fixed periods of time. The loss of roots is the direct result of this state of things, and with this comes the injury to the fruits.

COMMUNICATIONS RECEIVED.—F. J. F.—J. H. C.—S. C.—D. W.—Prof. Henriques.—Columbia.—W. E.—L. M.—W. E. G.—W. S.—E. B.—C. B. L. S.—H. D.—R. A.—J. S—J. C. P.—M. L.—R. G.—J. H. & Sons.—W. A. G.—J. R.—C. P.—G. M. W—A. H.—C. T. D.—H. M.—H. J. C.—H. W. W.—J. Benbow.—G.—Expert.—R. M.—J. J. W.—E. C.—W. E. L.—F. J. M.—D. R. W.

CATALOGUES RECEIVED.

THOS. KENNEDY & Co., High Street, Dumfries, Florist's Flowers, and general catalogue of Stove, Greenhouse, and Hardy Plants.

A. PORTER, Stone House, Maidstone—Top-dressing or Layering Band, Improved Coil Stake, and Invincible Crock.

C. A. NORÉLIUS Gembrook Nurseries, Emerald, Victoria, Australia—Elms, Oaks, Planes, Rhubarb, and small Fruits of European gardens.

Arundinaria nobilis, Hardy Bamboo, in Mr. Rashleigh's Garden at Menabilly, Par, Cornwall.

Bradbury, Agnew & Co., Ld., Printers, London and Tonbridge.

THE
Gardeners' Chronicle

No. 851.—SATURDAY, APRIL 18, 1903.

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WORN-OUT SOILS.

IT is not uncommon to hear the soil of a garden spoken of as "worn-out;" particularly is this the case with old-town gardens, as, for example, the garden of the Royal Horticultural Society at Chiswick, which was often thus described in the discussions about its removal a year or two back.

At first sight, the idea of a worn-out garden soil is difficult to understand; it cannot well be worn-out in the sense of becoming exhausted by cropping of any of the usual constituents of plant-food, because the ordinary routine of manuring which prevails in a well-managed garden adds far more nutriment to the soil than is removed in the crops; so that the fertility should increase rather than diminish as time goes on. Yet the expression denotes a series of facts it would be idle to deny; that in some gardens certain plants gradually cease to flourish, despite a plentiful supply of manure. On the other hand, garden stuff often does extremely well in land newly taken in from field cultivation, and the predilection of the gardener for maiden loam for his pot plants is founded on long experience.

It might be thought that the principle which underlies the rotation of crops supplies an explanation, but the long duration of the Rothamsted experiments has shown that, with one notable exception, it is quite possible to grow crops continuously on the same land without any deterioration in produce, provided there is a sufficiency of manure. Except in the case of the Leguminous plants, the value of a rotation comes, as it were, from secondary causes; the land is maintained in a better tilth, and the food-reserves it contains are more thoroughly utilised if deep and shallow rooting-crops alternate. Rotations also clean the land, for weeds which are favoured by a particular crop are eradicated in the management appropriate to another, while fungus and insect pests in the same way do not accumulate through finding the host plant on which they depend occupying the ground year after year. In a garden, however, there is quite sufficient rotation of crops to obviate any of the dangers thus indicated, and the supply of manure is quite liberal enough to render unnecessary any special economy in the way of using up the whole of it by the successive growth of plants of different habit.

What then are the characteristics of these worn-out soils? as a rule they are light in texture, possess very little cohesion, and fall apart on drying, when also they get a grey dusty appearance, and do not readily take water, as though they were oily in some very slight degree. At certain seasons of the year growth is very free on these soils, particularly in early spring and in autumn; but the growth lacks substance, and is very liable to insect or fungoid attack, so that it is very difficult to carry green stuff of the Cruciferous kind through the winter.

It is to the lightness of texture that we must attribute in the main the defects of these soils; they are almost wholly composed of the coarser kind of soil particles, classed as sand, and they contain a very small proportion of the finest particles which may be termed clay. Soils composed chiefly of coarse particles possess very little retentive power for water; the surface exposed by the particles is comparatively small, so that weight for weight there is less surface which remains wet after rain in a coarse than in a fine-grained soil; the channels also between the particles are naturally larger, and allow water to drain away more readily. This explains why the soils we are considering "dry out" so readily, but other consequences also follow. A dry soil is a warm soil, or rather is more easily warmed and cooled, and is therefore more susceptible to daily and seasonal changes of temperature than a soil well supplied with moisture. Hence we get a state of things which is not entirely congenial to vegetation—early spring growth due to the ready warming up of the soil, followed by checks caused by short spells of drought which would not affect a soil initially better provided with water, or by overheating while the roots are still near the surface, and lastly a renewal of growth in the autumn, when the warm soil is again provided with plenty of water.

All such changes and checks tend to curtail the period of growth, and force the plant into producing flower and seed before it has accumulated a proper reserve in its early period of vegetative activity. From the chemical point of view, the small proportion of water retained by the soil affects the crop injuriously; the comparative warmth stimulate those decay processes in the soil which convert the insoluble nitrogenous compounds of humus or manure into the nitrates which serve as food for plants; but, on the other hand, not enough water remains in the soil to bring into action the sparingly soluble reserves of mineral food. Hence the nutriment which reaches the plant is badly balanced; the comparative excess of nitrogenous over the mineral food results in a soft growth, susceptible to attacks of disease.

Per contra, a moderately strong soil, which is capable of retaining a considerable proportion of the rainfall, and which also is fine-textured enough to be able to lift water from the subsoil by capillarity, only warms up slowly as the season advances. Growth is therefore slow and continuous, and not liable to checks through drought; it is also more prolonged, because the ground parts with its heat more slowly in the autumn, just for the same reason as it rises in temperature more slowly in the spring. Such continuous and prolonged growth is the most favourable to vegetation, and results in high quality in the produce.

But it will be asked, how are these conditions in any way peculiar to old gardens? are they not rather characteristic of any light soil? And the answer is, that the high cultivation to which gardens are subjected continually tend to deprive the soil of its finest particles. Gardens are habitually dug and trenched deeply, large quantities of stable-manure are worked in, which by its rapid decay renders the soil open; whereupon every heavy rain carries down with it the finest particles, and leaves the surface by so much the more coarse-grained. In the same way, heavy waterings are a great source of loss of the finer particles of soil; gardeners are familiar with the comparatively loose and sandy texture of the surface as soon as it is dry after a heavy watering. It is this constant washing down of the finer elements of the soil which results in the dry and dusty texture characterising the so-called "worn-out" garden. Then, again, a very large number of town gardens, especially those belonging to the older houses, must have started with an over-light soil, which might be more aptly described as "born tired" than "worn-out;" for most of our towns are situated on or near a river, and the favourite sites for building were always on the gravel—in earlier times because of the water-supply that could be so readily found in it, and latterly because of its assumed superiority in the matter of health. The older suburbs of London follow very closely the great gravel sheets of the lower Thames valley—Kensington, Chelsea, Putney are cases in point; it was only later, with the pressure of population and the introduction of an extraneous water supply, that the houses spread on to the clay in districts like Paddington and St. John's Wood.

As the garden of the Royal Horticultural Society at Chiswick has been referred to as "worn out," it will be interesting to examine its composition, as ascertained by analyses made in 1900. At the same time we wil

give some other results for the sake of comparison—

Chemical Analysis.

Constituents.	1. Chiswick.	2. Chiswick.	3. Sandy Loam arable.	4. Light Chalky Loam.	5. Old Clay pasture
	%	%	%	%	%
Moisture	3·35	2·74	1·62	1·94	6·89
Loss on ignition (organic matter, &c.)	7·43	5·51	3·46	4·94	13·21
Nitrogen	0·28	0·21	0·12	0·15	0·22
Phosphoric acid ...	0·375	0·205	0·10	0·10	0·25
Potash	0·4	0·32	0·36	0·48	0·90
Carbonate of lime.	trace	trace	0·32	1·96	0·01
Mechanical Analysis.					
Fine gravel ...	8·1	5·7	0·5	0·6	0·3
Coarse sand ...	22·6	23·4	15·0	8·9	5·2
Fine sand	29·1	35·2	49·0	32·3	7·5
Silt	11·6	11·9	15·3	25·6	19·3
Fine silt	2·8	2·8	3·9	4·7	12·8
Clay	9·1	9·0	9·8	14·1	31·6
Moisture, organic & soluble matter	16·7	12·0	6·5	13·8	23·3

Considering the chemical analysis first, it will be seen that the Chiswick soils show no striking deficiency as compared with the three latter examples, which are soils of admitted fertility. The proportion of nitrogen is high, though not specially so for a garden soil; the phosphoric acid is a good deal above the average; the potash is only moderate in amount, gravelly and sandy soils being generally deficient in this respect. The proportion of carbonate of lime is distinctly too low, and no doubt the lack of this indispensable constituent of soils contributes to the want of vigour exhibited by some plants, but on the whole there is nothing in the chemical analysis to suggest a "worn-out" soil. The mechanical analyses, however, show a very coarse-grained soil: after omitting the stones, more than 60 per cent. of the soil consists of sand and and fine gravel, and only 9 per cent. of clay, while the intermediate silt is almost wholly of the coarser grade. Even the light loams which are given for comparison, both of which are richer in the finer grades of particles, are soils which only yield good crops where they are so situated that the subsoil is kept well supplied with water, whereas the Chiswick subsoil is maintained in an unnaturally dry state by the buildings around.

If, lastly, we compare the analysis of the clay-land pasture, just the kind of material a gardener would desire in the shape of turves to rot down, we see a great contrast: here the sand is only 13 per cent. against 60 per cent. in the Chiswick soil; the silts have risen from 14 per cent. to 32 per cent., the increase being greatest in the finer grade; while the clay is over 31 per cent., instead of only 9 per cent. in the Chiswick soil. Of course, such a soil is rather too "heavy" for garden work, and would want draining and lightening by the incorporation of ashes and burnt clay; however, it serves to throw into relief the coarse texture of the Chiswick soil.

There is only one cure for a garden which has got into the "worn-out" state, and that is to "clay" it; manure of any kind only intensifies the bad condition. Early in the autumn a quantity of strong loam or clay, the stiffer the better, should be obtained; of course, the surface soil is the best, but subsoil will do provided it is yellow or red in colour, and not one of the barren green or black unoxidised clays. When nearly dry, this should be passed through an inch meshed sieve and the large lumps broken, then strewn over the surface at the rate of one bushel or so per square rod, and allowed to wash-in with the autumnal rains. The finer the state of division and the more it is worked about with the soil, the sooner will it tell; in any case, the good effects will be more apparent a year or two after the application than in the first season. Naturally, as the fine clay particles eventually get washed down, the treatment will want renewing from time to time.

One other thing it is well to keep in mind in dealing with all garden soils of the lighter class, to keep them as tight as possible below. Garden soils with their deep cultivations and large dressings of manure, are often far too loose below the surface layer—so loose that water runs through them too quickly and cannot return again by capillarity. Whenever the texture of the subsoil is anything better than clay, it should be kept firm and consolidated, and the surface only should be loose and powdery to serve as a mulch. Speaking generally, the growth of plants is more dependent on the supply of water than of manure, and this is particularly likely to be the case in town gardens with their walls and their highly drained subsoil. Though gardeners recognise this truth when dealing with their pot plants, it is not always seen how dominant a factor it is out-of-doors, and in how many ways the character of the vegetation is affected by the behaviour of the soil towards water. *A. D. H.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM MONTANUM.

To Messrs. Wallace, of Colchester, we are indebted for a flower of this species, presenting some remarkable peculiarities. There are three distinct sepals, two lateral petals, two lips, and a column consisting of a lanceolate, yellow, deflexed staminode, beneath which are three fertile stamens, two lateral, one median, corresponding to *a*1, *a*2, and *a*3, of the Darwinian notation. These surround the ovate-triangular stigma. The ovary has three parietal placentæ.

Cypripedium (Paphiopedium) siamense.

Mr. Reginald Young is to be congratulated on having produced a plant by crossing C. Appletonianum with the pollen of C. callosum, which is indistinguishable from P. siamense. This latter is thus shown to be a natural hybrid. It was described by Mr. Rolfe in the *Gardeners' Chronicle*, 1890, i., p. 161. The record of Mr. Young's success will be found in the *Orchid Review* for February. *M. T. M.*

Diacrium bicornutum.

This species is now in flower here; it is a very desirable stove Orchid, by reason of its exquisite beauty; but, like many other Orchids, this species frequently deteriorates under cultivation. The plant, however, may be grown successfully providing it is propagated, and the stock renewed by this means from time to time.

After the flowering season is past, and the new growths are 1 inch in length, cut away the buds with one or two pseudo-bulbs attached, and pot them singly, or place several together to form a specimen. The potting material should consist of good turfy peat and chopped sphagnum in about equal parts, using the rhizomes from the peat as drainage material. The old stock plants should be left undisturbed till new leads are again formed from the back portion; these may in turn be removed and potted up—by this means the whole stock will be rejuvenated and increased, and the chief cause of deterioration removed.

Suspend the plants in the shadiest and warmest part of the stove Orchid-house; and during the growing season afford them copious supplies of water, and spray them freely with the syringe. At no season of the year should the compost be allowed to become dry, provided the temperature of the stove Orchid-house is maintained as it should be. *W. P. Bound, Gatton Park Gardens, Reigate.*

PLANT REPRODUCTION.

It is a curious fact that even amongst the more highly-developed plants we find a persistence of one character which has been utterly lost in the more highly-developed animals, and that is a power of reproduction from detached fragments. This faculty we find in some of the minuter members of the animal kingdom, such as the Hydra, but in all the higher animals it has been reduced to a varying extent to a faculty of local repair. In plants, however, the familiar process of propagation by buds and cuttings show us that every new axis of growth is really the commencement, not merely of a fresh limb, but of a fresh individual, and we know by experience that this individual, if skilfully detached, is capable of becoming a new plant. If a cutting, it will develop a new system of roots in the soil; or if an engrafted bud, it will manage to associate itself so intimately with the stock, as to draw nourishment from the alien root system assimilate it on its own particular lines, and so form its own special community of branches, twigs and leaves, and flowers and fruits. All the cells of a plant indeed, which form the growing tissues, appear to retain not only a power of forming fresh individuals, but also of assuming different vital functions. Thus it is a well-known fact that a tree, dug up and replanted upside down with its branches in the soil and its roots in the air, is, in some cases, capable of accommodating itself to its reversed position, the branches sending only roots into the soil, and the erewhile roots producing leaf-buds in the air, the root and leaf-forming cells thus adjusting their functions to their changed environments. This in the case of the buried branches is, of course, a mere exemplification of the process of rooting effected by cuttings, each buried bud producing roots, and probably if near enough to the surface, leaves as well; but that the roots exposed to the air should, however, develop leaf-buds is distinctly an extension of the adaptative power, though it finds its parallel in such creeping plants as Anemone japonica, whose roots are studded with incipient leaf-buds. The reproductive powers of the individual cells come, however, more markedly to the fore in such cases as the leaves of Begonias and other plants, which, when wounded on their surface that is quite remote from any axial bud, form numbers of young plants on the edges of the wound; or in that of bulbs, such as Hyacinths, which, when scooped out at the base, develop bulblets in quantity on the severed edges of the embryo leaves which constitute the bulb. In these cases clearly enough it has not been necessary for any previous incipient bud or axis of growth to have been formed, there is simply a raw wound accompanied by a check to normal growth, affording a normal outlet for the vitality of the leaf or bulb; and as a result, the local cells collect this vitality as it were, and using the wound as an outlet for it, build up new individuals

in the completest possible fashion. We find the same capacity in many Ferns, the old fleshy bases of their fronds retain for years the power of developing young plants from their cut surfaces at points where normally they would never appear.

No highly developed animal possess any power akin to this, and we can perceive that such a capacity is the more necessary to plants, which, being non-locomotive, cannot avoid as animals can do, crushing and trampling, and similar destructive accidents or incidents. The plant is seemingly destroyed root and branch, its scattered fragments lying far and wide; but if we return to the scene of the catastrophe a year or so later, we may find that in lieu of annihilation, the cataclysm has been the foundation of a colony. I have in mind the case of one of the rarest of our native Ferns, which was chopped up by the spade of some spiteful miscreant, and scattered over the owner's garden, where I subsequently beheld a magnificent row of eighteen grand specimens developed from the ruins, thanks to a proper recognition of the creative power of the individual cells. I strongly incline to the belief that with all our horticultural knowledge and experience, this power is not yet sufficiently recognised. It is sometimes very slow in evidencing itself; fragments of Fern-frond bases, for instance, which have been detached and placed under culture, have shown no signs at all of life for nearly a year, looking as dead as possible—and then developed, not one, but numerous plants. Small, detached pieces of the fleshy rhizomes of Polypodiums have been as sluggish, and yet eventually produced plants; and since there were no "eyes" or incipient axes of growth, it is possible that experiments in this direction with many fleshy-rooted plants, such as the Orchids, might be well worth trying. The process adopted by the writer is very simple, and involves the minimum of trouble. The fragments detached are washed clean, and all dead matter removed. A common tumbler is then taken, an inch of clean silver-sand placed at the bottom, and thoroughly wetted, and on this the fragments are laid, i.e., simply dropped loosely on the surface. A slip of glass is placed on the top of the tumbler, which is then put in a shady corner, and left severely to itself until the bulbils appear, as they usually do in a few months, or perhaps earlier, though sometimes, as we have seen, much later. In a warm-house, development would be much more rapid, and a fairly good temperature would probably yield results in far more plants than are generally supposed to be amenable to this kind of propagation. *Chas. T. Druery, F.L.S., V.M.H.*

NOTICES OF BOOKS.

The Book of the Wild Garden. By S. W. Fitzherbert. (John Lane.)

There seems at first sight to be something of an incongruity in the title of this book. A "book" suggests order, method, arrangement; a "wild garden" implies disorder, a struggle for existence, a fight for supremacy. The incongruity is, however, superficial; the book indeed is the result of method, and the "wild garden" as here connoted means one in which plants are permitted to adapt themselves to their surroundings in the best manner possible, as they do when they are "at home." An ordinary garden is avowedly a creation of art; a so-called wild garden is one in which the art is concealed. When the "wild garden" is brought into proximity to the house it is as much out of place as geometrical flower-beds are in a wood. The planting of Daffodils in a meadow is charming, but plant them in the same way in the dressed garden or on the lawn, they become incongruous. One great charm of the "wild" garden is that the plants are for the most part enabled to grow as they please; they need no pinching or pruning, nor pegging down nor staking; they can grow as Nature intended them to grow, and their true "habit" is better seen than when in the herbaceous border; or still more, in the flower-bed they have to submit to the exigencies of the locality and the requirements of their neighbours. Mr. Fitzherbert's introduction may be read with profit, as he is in full sympathy with his subject. As to the text, it is divided into sections dealing in succession with bulbs, tall plants, plants of medium size, dwarf plants, flowering shrubs and trees, peat-loving shrubs, climbers, water-plants, plants for moist and boggy ground, and wall plants. Under each heading a selection of appropriate plants is given in alphabetical sequence. The book is full of useful hints to those who have already some familiarity with plants, and it has a good index.

English Timber and its Economical Conversion.

"Acorn," for so the writer of this little book styles himself, has given us in short compass information which it is difficult to find elsewhere. Foresters, estate managers, and those who have to deal with the sale of timber, or its conversion, will find this little book indispensable.

To combat the Larch disease, the author recommends the liberal application of gas-tar to the affected parts as soon as the disease is detected. The description of the disease, as manifesting itself "in large excrescences which are nothing more or less than spore cases," is not quite so accurate as it might be. The railway companies are blamed for their high freight rates, which renders it cheaper to import foreign timber than to grow it at home. The publishers are Messrs. W. Rider & Son, Aldersgate Street.

"A Third Pot-Pourri."*

Admirers of Mrs. Earle's former "Pot-Pourri" books will welcome this addition to them. It is, perhaps, hardly to be expected that three successive volumes can have equal merit and interest, and we must ourselves confess to preferring the older books to this new one. It is indeed a Pot-Pourri; at any rate, it contains most varied ingredieuts, and if the effect of the blend is incongruous, it is at least interesting. Those readers who are disposed to criticise the book too severely are recommended to study the preface before passing judgment. Mrs. Earle tells us first a great deal about health and dieting—especially her own health and dieting, and excuses herself for this on the plea that her former notes on the subjects have been much appreciated. They are indeed interesting to dyspeptics and to many healthy persons not too busy to study their own constitutions. The last part of *A Third Pot-Pourri* is occupied by letters from the late Capt. Sydney Earle, son of the authoress, and the publication of these personal documeuts has proved a solace to the mother in her sorrow. Sandwiched in, as it were, between chapters devoted to such different subjects are notes "from a scrappy journal," arranged according to nine of the months, and written more in Mrs. Earle's own style, and on those gardeuing matters with which her name is already associated. The following quotation will illustrate our meaning. She writes that:—"The formal garden, to my mind, is certainly adapted to the formal house, though it often shares its ugliness. In the case of very beautiful old places, I think what looks best is either turf right up to the house, especially if the fine timber has been spared, such as Yews, Cedars, Oaks, Beeches, Mulberries, &c.; or if there is a garden round the house, it should be in small proportions, paved, and planted with Roses, Rosemary, Carnations, &c., in large masses. The actual gardens for the gathering of flowers should be near the house and yet apart from it. Given space enough, my idea of perfection for those who live in their place all the year round would be to have various gardens, of which some would be at rest and others in full beauty; say, a bulb-garden, an Iris-garden, a garden for early and late annuals, perennial borders connecting some of these together; a double avenue of Michaelmas Daisies, another of Lavender and China Roses, and a straight walk or terrace with a formal imitation of the way Orange-trees are grown in Italy." This extract, for which only we have space, is a fair sample of the chatty style of the book, which is by no means a small one, and contains much else that will please its public.

* By Mrs. C. W. Earle. (London: Smith, Elder & Co., 15, Waterloo Place.)

KEW NOTES.

Anemone intermedia. — A pretty Anemone, having pale yellow blossoms ¾ of an inch in diameter, and growing 3 or 4 inches high, has been flowering of late in the alpine-house. The plant is a native of Silesia. What appeared to be very near to this plant, if not identical with it, is a plant labelled A. ranunculoides var. pallida in a collection sent by the Guildford Hardy Plant Co. to the Drill Hall recently. Indeed, I could detect no difference whatever; and the latter name is descriptive of this early flowering variety. Small colonies snugly placed in the rock-garden are very effective in the early months of the year. A. ranunculoides is rich in colour, and when observed in good condition, the yellow flowers present a highly varnished surface that is very attractive.

Anemone Robinsoniana.

There is nothing more elegant in the Windflower genus in early spring than this species, which for some days has been flowering freely in sheltered seclusion. In deep and good soil the plant will reach 9 inches in height; and when towards 10.30 A.M., the flowers of the size of a florin are fully open on a sunny morning, the effect is very pleasing. The predominant colour is the palest sky-blue, and the slightly revolute petals enhance the beauty of the flowers, which are very chaste in their setting of green. *E. J.*

WEST INDIES.

VARIETIES OF CASSAVA.

In your issue of October 25 last, Mr. W. G. Freeman, scientific assistant of the Imperial Department of Agriculture for the West Indies, directs attention to the poisonous properties of sweet Cassava. His statement with regard to the West Indian sweet Cassava is correct, and recently that Department has noted the fact that from time to time people are poisoned by eating sweet Cassava in the West Indies. Bitter Cassava is much more poisonous. In view of the great possibilities of this cultivation in the Tropics, I herewith enclose the result of the analyses by the Government chemist here of the tubers of seventeen varieties of Cassava which I have recently introduced to Jamaica from Colombia. It is important to note that these new varieties are non-poisonous, so that their culture may be turned to account as a leading article of food throughout tropical regions.

In your issue of August 9, 1902, p. 99, you commented upon a report of mine on Cassava as a great prospective industry, i.e., for the production of starch and glucose, for both of which it surpasses all other plants in the quantity producible per acre, and at a minimum cost.

Thus, 10 tons of Cassava tubers per acre is a moderate estimate; from the common naturalised West Indian varieties, which yield only about 20 per cent. of starch, 2 tons. But my best varieties recently introduced, as will be seen in the Government chemist's report, yield from 30 to 36·50 per cent. of starch. The variety yielding the last-named percentage I have named "Governor Hemming," in compliment to our Governor.

Potatos in Europe yield an average of about 6 tons per acre, from which the starch obtained amounts to only 16 per cent.

In America, Maize yields an average of about 30 bushels per acre—less than half a ton of starch.

During the past few years, Florida has established Cassava cultivation on a commercial scale, and of splendid quality. Florida, however, can hardly compete with purely tropical regions. At the same time, the Florida farmers have demonstrated to the world the importance of Cassava, not only for the making of starch and glucose on a commercial scale, but also as stock-feed from the tubers and by-products. *Robert Thomson, Half Way Tree, Jamaica, March* 19, 1903.

As a rule, Grape-vines do not bear well here; the fruit is always small, and the plants seem to have a struggle to keep in health. Vitis Martini grows luxuriantly, however; and it dies down to the ground every year. We had some splendid bunches this year; they were borne on a branch that had climbed far up into a tree. The appearance of the bunches reminded me of what I had seen at Norwood Gardens, Alloa, over the label Gros Guillaume or Barbarossa; but the berries of Vitis Martini are disagreeable to eat, and leave a stinging sensation on the tongue. If Vitis Martini could be crossed with V. vinifera, an improved variety might be obtained for cultivation in this part of the world.

I was very pleased to see in the issue of the *Gardeners' Chronicle* for November 1 the portrait of my good old chief, Mr. Alex. Kirk, with notes of some of his achievements in plant-culture, and think it not out of place to say that I had the honour of spending under him my first three years in the gardening world, 1890 to 1893, and that the principles and practice which I then learned have proved a firm foundation indeed. *Wm. Leslie, Senior Agricultural Instructor for Trinidad, Dec.* 2, 1902.

THE COLORADO VARIETY OF THE DOUGLAS FIR.

The Douglas Fir, as is well known, is a variable species. In British gardens several varieties occur which differ from the type in habit or colour of foliage. In its native habitat the species seems to vary to some extent with locality, and in Veitch's *Manual of the Coniferæ* (new ed.), three geographical forms are mentioned, viz., glauca, macrocarpa, and taxifolia.

The variety of the Douglas Fir known in British nurseries as the Colorado form of the plant, has recently received considerable attention from planters, and it has been recommended for planting as a timber tree in some localities in preference to the ordinary green, or as it is often called, Pacific form, on account of its apparently hardier constitution.

There seems to be some doubt, however, as to what this so-called Colorado form of British nurseries really is. In his *Silva of North America*, Professor Sargent refers to the failure which attended the first attempts to introduce the Douglas Fir into the Eastern States, by means of plants raised in England from seeds collected in Oregon, or produced from trees grown in Europe (presumably of the ordinary green form), and to the subsequent success of the project by means of plants raised in the Botanic Garden of Harvard University, from seeds collected by Dr. C. C. Parry, in 1862, on the outer ranges of the Rocky Mountains in Colorado.

Sargent speaks of the plants raised from these Colorado seeds as having grown "rapidly and vigorously" in the neighbourhood of Boston, and of their giving promise of "surpassing all the other exotic Conifers in permanent beauty and usefulness." There is nothing in his statement to indicate any falling off in the growth of this Colorado variety, as compared with the ordinary green form; in fact, his description of the plants growing near Boston seems to point in the opposite direction. But the height-growth of the Colorado variety under cultivation in Britain is admittedly very slow, as compared with the common green form; and in the course of last summer, some plants of what seem to be this variety came under my observation in the neighbouring county of Peebles, which exhibit such extraordinarily slow growth in height, that it is difficult to believe they can belong to the same variety as that to which Sargent refers the Boston plants. And another circumstance which tends to still further complicate the matter is a statement made by Professor Schwappach, in his report on the result of experiments which have been conducted in Prussia during the last twenty years with exotic trees, a digest of which is published in the *Transactions* of the English Arboricultural Society (vol. v., part i.). In referring to the Douglas Fir, Schwappach says:—

"A tree of such wide distribution is almost certain to have several varieties. Sargent makes two varieties, viz., P. mucronata and P. macrocarpa, which are distinguished by the size of the cones, those of the former being 2½ to 3 inches, while those of the latter are 5 inches in length. There are also variations in the size of the scales and flowers, and to some extent also in the colour of the leaves: the variety mucronata having pale green leaves, rounded, and obtuse at the apex; while in the form macrocarpa the leaves are pointed at the apex, and of a bluish-green colour. These distinctions agree with the classification of English nurserymen, who define Douglas Firs as of the blue or glaucous and green varieties. The glaucous variety grows much more slowly than the green, but as the latter is perfectly hardy in Germany, and yields the better timber, there is no necessity to plant the other." From this statement it is quite clear that although Prof. Schwappach has had no experience of the glaucous variety, which he rightly refers to as a slow grower, he is apparently under the belief that it is Sargent's macrocarpa, and that this is what is grown in British nurseries as the Colorado form. In Veitch's *Manual*, however, it is stated (p. 484) that it is the variety glauca which "is known in many gardens as the Colorado variety, in reference to its origin; although it is not found exclusively in that State, but along the Rocky Mountains almost from the north to south;" and that "macrocarpa is a local form inhabiting the San Bernardino Mountains in south California, and their continuation into northern Mexico;" and in reference to the varieties cited in the *Manual*, it is stated (p. 479) that "with the exception of macrocarpa, they are all occasionally met with in British gardens."

In his *Silva*, Prof. Sargent gives specific rank to the two plants referred to by Veitch and Schwappach as varieties. The typical Douglas Fir, or as it is called in America "Douglas Spruce," or "Red Fir," he places under Pseudotsuga mucronata (Sudworth), a specific name which is not likely to displace Douglasii in Britain; the other, which he calls "Hemlock," he places under P. macrocarpa (Mayr), and he gives its habitat as the "lower western and southern slopes of the arid mountains of Southern California," of the scanty forests of which he states it is a characteristic feature. He also states that "although its seeds have been sent to Europe by collectors, Pseudotsuga macrocarpa does not appear to have been successfully cultivated," and he adds that "it probably always grows slowly."

In Professor Schwappach's report, already referred to, the principal characters by which Pseudotsuga mucronata and P. macrocarpa are distinguished from each other are mentioned. In his description of P. macrocarpa in the *Silva*, Professor Sargent says: "Pseudotsuga macrocarpa can be distinguished from the other American species by its comparatively longer and remotely placed branches, by its sharp-pointed, peculiarly coloured blue-grey leaves, by its shorter and stouter winter buds and larger cones, with thicker, more concave cone-scales, comparatively shorter bracts with stout broad tips, and by its larger and fuller seeds, which have a thicker and broader coat, and are much darker on the upper surface. Intermediate forms are not known to exist between the two species, which occupy different regions, Pseudotsuga mucronata having failed to reach the mountains of south-western California, which are the only home of Pseudotsuga macrocarpa either along the California coast ranges, the Sierra Nevada, or from the Rocky Mountains across the Colorado Desert;" and he states that P. macrocarpa is a tree "usually from 40 to 50, and rarely 80 feet in height, with a trunk 3 or 4 feet in diameter, which is generally naked at the base for about one-quarter of its length, but sometimes clothed to the ground with branches." There is, therefore, as well as a marked difference in the botanical characters of the two species, a great difference in the size of the trees, the Douglas Fir (P. mucronata) attaining to a height of 300 to 350 feet, with a trunk 10 to 12, and in some cases even to 16 feet in diameter at a height of 5 feet, and clear of side branches for from 200 to 250 feet, in the neighbourhood of Puget Sound, in the north-west of Washington State, where it reaches its greatest development.

It will thus be seen that a good deal of ambiguity exists regarding the identity of the Colorado form of the Douglas Fir grown in British nurseries. Professor Schwappach is evidently of opinion that it is Sargent's macrocarpa; but Sargent and Veitch seem to think that this plant is not under cultivation in Europe, and Veitch states that what is grown in British nurseries as the Colorado form is the variety glauca. The growth of the Colorado variety grown in British nurseries is admittedly slow—in some instances extremely slow; while those of Colorado origin growing near Boston are, according to Sargent, of rapid and vigorous growth. Prof. Schwappach states that, as the ordinary green form is perfectly hardy in Germany, it is not necessary to plant the glaucous variety; while the latter is sometimes recommended for planting in the milder climate of Britain, on account of its lesser hardiness. P. macrocarpa is a slow grower, like the Colorado form of British nurseries, but it is a native of southern California, and is unlikely to be hardier than the ordinary green form of the Douglas Fir. But what seems to create still further difficulty is the fact that the Colorado form of British nurseries has more or less sharp-pointed, blue-grey leaves, and in this respect answers to the description of P. macrocarpa as given by Prof. Sargent in the *Silva*. One thing, however, is certain: P. macrocarpa is neither a fast grower nor a large tree; and however it may compare with the Colorado form of British nurseries as a timber tree, it falls far behind the ordinary green or Pacific form of the Douglas Fir in this respect. *A. D. Richardson, Edinburgh.*

BAMBOOS.

With reference to the flowering of the Bamboos and their alleged death in consequence of the production of seed, we append an extract from an official report drawn up by Major-Gen. C. B. Lucie-Smith, when Deputy Commissioner of the Chanda district, in the Central Provinces of India, a tract of country some 10,000 square miles in extent, over more than half of which in 1869 the forest rolled league upon league, one mighty wave of trees and Bamboos. Gen. Lucie-Smith was for some years in the West Indies and South America, but he never heard that the Bamboos growing in those countries died after flowering.

"The uses of the Bamboo," he wrote, "are almost infinite, and it could probably be the least spared by the people of all the products of the forest. It is of two kinds—the common, and the Kutung Bamboo. The first grows in all light soils, and in each clump there will be one or two canes which shoot up above the others, with only a small hollow at the core, being the "male Bamboo," so prized for the shafts of hog-spears. The Kutung is much larger than the common species, attaining a height of sixty feet, with a corresponding thickness of stem, and grows chiefly on the banks of streams. In the Khalsa country it is found principally in the dense Mohurlee forest, but the Zemindarees have it in great abundance.

"During the rains the young cane shoots from the ground, and being then tender, though of considerable thickness, is boiled and eaten by the Gouds. It seeds at irregular intervals, and the produce is carefully collected for food. With the effort the Kutung dies, and people of all classes believe that seeding only takes place during years of scarcity. My own experience is, that in each year since 1864, various clumps of Kutung have seeded in succession."

NEW PLANTS AT GHENT.

The publication of the present issue coincides with the opening of the great Ghent Exhibition. We are enabled to give illustrations (see Supplementary four pages), specially photographed for us by Mr. Gregory, of Croydon, of some of the new foliage plants exhibited by Messrs. Sander & Sons, of St. Albans and Bruges. Most of these are included in the group for twelve new plants, and these have not yet produced flowers, so that the names given must be taken as provisional only. In our next number we shall give a full report of the exhibition, together with additional illustrations of foliage and other plants.

Polypodium Knightiæ (*hort. Sander*), fig. 99.

A graceful Australian Fern, with long narrow arching fronds, pinnately divided, with the pinnæ prettily subdivided into linear acute lobes of unequal lengths, and more or less crested. It will form one of the most attractive of stove Ferns.

Romanovia Nicolai (*hort. Sander*).

A Calamus-like Palm, with mealy-down on the stems, long, slender leaf-stalks without prickles. The leaves are pinnate, with remote segments tapering to a wedge-shaped base, and with the retuse apex divided irregularly into long, acutely-pointed lobes, somewhat as in Caryota.

Selaginella Watsoniana (*hort. Sander*).

A species something in the way of S. Martensii, with arching, fan-shaped fronds, but with the tips of the shoots showing a bright silvery variegation. When seen in quantity it is very effective, and will form an excellent plant for edgings of beds or stages in the stove, or for carpeting the soil beneath tall-growing subjects.

Vriesea Alexandræ (*hort. Sander*).

A species with oblong, green leaves, marked with longitudinal, yellow stripes. It is a native of tropical America.

Dracæna Broomfieldi superba (*hort. Sander*).

A form, native of tropical Australia, with spreading or recurved, strap-shaped, undulate, sessile leaves, with a deep green centre, bordered with a broad white margin, which renders it very conspicuous.

Nepenthes Sanderiana (*hort. Sander*).

A species from Sumatra, whose pitchers have much of the character of N. Rafflesiana, but are said to be quite distinct.

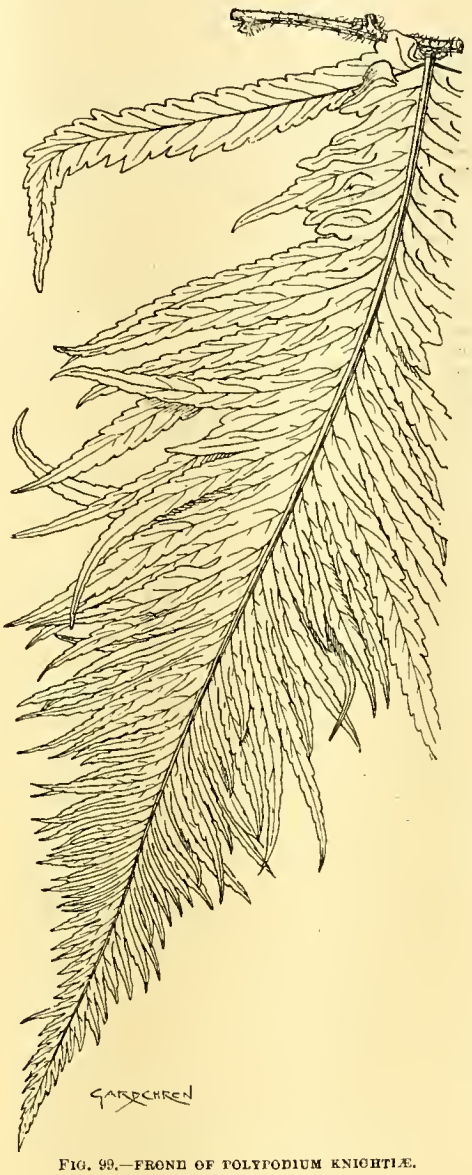


Fig. 99.—Frond of Polypodium Knightiæ.
(*See fuller illustration in Supplement.*)

Pandanus Wavrinianus (*hort. Sander*).

A species named in compliment to the Marquis de Wavrin, with narrow, strap-shaped, recurved leaves, dark olive-green in colour, with numerous awl-shaped teeth projecting from the margins at regular intervals.

Heliconia Edwardus Rex (*hort. Sander*).

A magnificent stove plant, with bold, Musa-like foliage, with broadly oblong acuminate leaves, pale yellowish-green on the upper surface, with a red midrib, and irregular blotches of the same colour, and with the lower surface of a uniform rich crimson. The young leaves are rolled round like a furled flag, so as to show the rich coloration of the under surface. The plant was introduced from New Guinea, and is one of the most striking of coloured foliage plants.

Dracæna kewensis (*hort. Sander*).

A form well suited for market purposes or for the decoration of apartments, owing to its hardy character. The leaves are dark green, broadly oblong-lanceolate-acute, tapering to a red leaf-stalk, half as long as the leaf itself. It is stated to be a native of New Caledonia.

Ficus pandurata (*hort. Sander*).

A noble-looking species, of tree-like habit, fit for the decoration of a large conservatory. The leaves are very large, shortly stalked, leathery, deep green, glabrous obovate-oblong, repand, tapering towards the cordate base; basal lobes small, rounded. Leaf-stalk short, 1 inch, about the same length as the broadly-lanceolate stipule.

Begonia Bowringiana (*hort. Sander*).

A Chinese fibrous-rooted species, with erect stems, leaves obliquely cordate, oblong, acute, rich velvety-crimson, mottled with green. The orange-coloured flowers are in panicles.

Pheynium Micholitzii (*hort. Sander*).

This very handsome species is named in compliment to the collector Micholitz, who obtained it in New Guinea. The long-stalked glabrous leaves are broadly oblong-acute, about 10 inches long, by 5 inches in breadth, green on the upper surface, with irregular broad white stripes radiating from the centre towards the margin, paler beneath, with a claret-red midrib continuous with the red leaf-stalk, which latter measures about 4 inches.

Alpinia Sanderæ (*hort. Sander*).

A species from New Guinea, with erect stems, ascending, very shortly stalked, glabrous leaves, 4 to 4¾ inches long, ¾ to 1¼ inch wide, rich, shining green, tapering at both ends, regularly striped at close intervals, with broad white bands diverging from the midrib to the margin.

Alpinia tricolor (*hort. Sander*).

A species from the Solomon Isles, with erect, cane-like shoots; narrow, oblong, acuminate, glabrous leaves, 10 inches long, 1¼ inch wide, tapering to a short, sheathing stalk, green, with divergent bands of creamy-yellow or white colour. A very effective stove plant.

PLANT PORTRAITS.

Apple Golden Pearmain.—*Bulletin d'Arboriculture, &c.*, January.

Brachychiton acerifolium. — *Revue Horticole*, March 1.

Cymbidium Traceyanum. — *Revue de l'Horticulture Belge*, February.

Dracæna Victoria.—*Revue de l'Horticulture Belge*, February.

Dianella tasmanica variegata.—*Revue de l'Horticulture Belge*, March.

Habrothamnus elegans.—*Amateur Gardening*, Jan. 31.

Hymenocallis calathina.—*Revue de l'Horticulture Belge*, March.

Iris pumila varieties.—*Revue Horticole*, March 16.

Pear, Bergamot Phillipot.—*Bulletin d'Arboriculture, &c.*, February. A stewing Pear.

Rose, Gloire de Lawrentia (R. semperflorens Lawrenceana).—*Rosen Zeitung*, March.

Rose, Mme. Cadeau Ramey.—H. T., Pernet Ducher, 1896, fawn-coloured, flushed with pink. — *Rosen Zeitung*, March.

Rose, A parfum de l'Hay.—The result of a cross between a Damask Rose and General Jacqueminot in the first generation, and afterwards crossed with Rosa rugosa.—*Journal des Roses*, February.

Strobilanthes anisophyllus.—*Revue de l'Horticulture Belge*, February.

"Hortus Thenensis."—The plants figured in the last two parts of the *Icones Selectæ Horti Thenensis*, consisting of excellent plates and descriptions of plants cultivated at Tirlemont by M. Van den Bossche, are Rhus tomentosa, Prunus Besseyi, Distylium racemosum, Thibaudia grandiflora, Callitris rhomboidea, Viola hederacea, Calandrinia grandiflora var. discolor, Hibiscus palustris, Geranium anemonæfolium, and Tulbaghia acutiloba.

FORESTRY.

FACTS AND FANCIES IN ENGLISH FORESTRY.

SOIL AND TREE-GROWTH.—The dangers of applying the abstract facts of science to every-day life and phenomena, without due consideration of the opposing forces of Nature, and the relation which such facts bear to other facts, are nowhere more strikingly illustrated than in the views which are sometimes expressed on tree-growth. When Liebig's researches in agricultural chemistry (in conjunction with those of other noted scientists in the early part of last century) drew attention to the comparatively large proportion of carbon in plants, and to the fact that much of this carbon was probably derived from the atmosphere, the minds of many cultivators were more or less unhinged from time to time on the question of manuring and plant feeding. The idea which found most favour for a long time was that which determined the most suitable food of a particular plant from the consideration of its analytical composition. It was based on the presumption that a plant took up exactly that quantity of any element which it required for its growth, which, in an ideal soil, it probably did. If potash predominated in the ashes of a plant, then it was assumed that potash manuring was what that plant required, and so on. The assimilative powers of plants were not then understood, and it never occurred to scientific cultivators that the particular manurial requirements of a plant were in more or less inverse proportion to the quantity of that particular manurial element in its ash. That this is so to a certain extent, is explained by the theory that some plants have a greater power of assimilating certain elements than others, and that the existence of comparative large quantities of an indispensable element in a plant is no safe criterion by which to judge of its requirements as regards manuring.

Coming to tree-growth in particular, it has often been asserted that soil fertility is of little importance to the growth of trees, and that the latter only require plenty of water and fresh air in order to produce timber on bare rocks. The grounds on which such assertions are made seem plausible enough at times. Specimens of native trees or Larch are found growing on the rocky face of a ravine, or amidst a bed of boulders or coarse gravel; and these are considered conclusive proofs that they are growing on little but air and water. The soil is not visible on the surface, and consequently it is taken for granted that there can be none below it; and as carbon and water constitute 95 per cent., or thereabouts, of the total bulk of timber, therefore, say certain exponents of forest physiology, carbon and water are the chief food of trees.

On analogous reasoning, attempts have probably been made from time to time to feed animals on water, air, and concentrated foods of one kind or another, according to the experimenters' theories, but up to the present their success has not affected the general methods of living and feeding, which, so far as we know, are very much the same as they always were. In the same way, the customs of the practical forester have not been greatly altered by the assertions of the forestry theorist, even when the latter can call to his aid those valuable object lessons on bare rock. The old fashioned forester still plants Oak on good ground, and Scots Fir on poor, although he is assured, on the highest authority, that such distinctions are sheer nonsense, and that where one will grow, there will grow also the other. Fortunately, most foresters have had sufficient experience in their calling to take little notice of those who have not, and no great harm results from attempts to prove that "out of nothing something is made." But it may be interesting to investigate more closely those instances which apparently prove that soil fertility and timber production have not such a close relationship as experience would usually lead us to believe.

Let us take an instance which may often be found, that of an Ash, Scots Fir, or Oak, growing out of the walls of an old ruin. Here, if anywhere, one might say that trees are growing without soil, and if our only conception of soil is that mixture found in the back garden, perhaps they are. But when one comes to reflect upon the composition of an old brick or stone wall, the difference between it and the soil on which it is built is not so great after all. Soil is simply powdered rock, while rock is simply crystallised soil, and bricks for all practical purposes may be considered the same. Exposed to the atmosphere both brick and rock are gradually reduced to soil again, which is washed off by rain as it forms; while the mortar which holds the stone and brick together is merely a form of calcareous earth and sand combined, and is also gradually reduced to soil. A tree or any other plant growing on such spots can only exist on the soil which is thus formed, and which it appropriates before rain washes it away. What the rate of growth of such trees would be expressed in cubic feet per year and acre we do not know; but that their rate of growth is determined by the quantity and quality of soil at their disposal there is little reason to doubt. How they get their moisture in a hot, dry summer is a mystery we do not pretend to solve; and the fact that they merely exist through such a summer does not lessen the mystery much, in our opinion.

Descending from the wall to the bare rock, we find the same conditions prevailing, except that here we have no mortar to furnish lime; but we have crevices which can hold moisture. Soil formation goes on in exactly the same way, however, and in proportion to the softness of the rock; and growth takes place in proportion to soil formation and moisture combined, and is usually more rapid where the rock is intersected by numerous crevices which hold soil and moisture, and which approximate more nearly to ordinary soils in their facilities for root penetration and the retention of moisture.

We may go on from bare rock to broken or crumbled rock, shallow gravel, deep gravel, or sand, to deep loam, and we find growth becoming more rapid (so long as the physical condition of the soil remains the same), until the maximum rate of growth for the species is reached. When the physical condition of the soil alters however with depth, the rate of growth will depend on the way the species is affected by such alteration. Reduced porosity will affect Scots Fir or Larch quicker than Oak or Silver Fir; while soil moisture is of less importance for Scots Fir than for Spruce or Larch. That which constitutes increased fertility for one species, such as greater depth or moisture, may become prejudicial to another; and when we say that the rate of growth increases with the depth or quantity of soil, the statement must be accepted in a relative sense only. All species have a definite root-habit, so far as the depth to which they send them in a given soil. Shallow rooters, such as Larch or Spruce, do not require much depth if they can get the requisite amount of moisture; while depth seems almost imperative for luxuriant growth in Oak. But in dry soils depth is of more importance in the case of all species, and the fact remains that the fertility of a soil for trees, unless excessive or stagnant moisture is present, increases with its depth (but not necessarily with the fineness of its particles, or its depth of garden or farm soil), until the latter is out of the reach of the roots.

Of course, in the case of trees, the great feature is their power of collecting food from a wide area, and from strata which are out of the reach of ordinary plants. This "acquisitive" nature is most marked amongst the Conifers, and their powers of assimilation are also greater than those of many hard woods. They not only require less mineral food than hard woods, but they are able to make the most of what the soil can supply, and this is why they can exist where the latter would starve, or grow where the latter would linger. But as every practical man knows, this rate of growth is as much influenced by the quality of the soil they grow in, as is the size of Cabbages or Turnips, although the rate of growth may be determined by a comparative, rather than an absolute degree of fertility. A plentiful supply of suitable food has as much effect upon their growth as it has on any other class of plant, and that is what fertility amounts to in any and every case. To assert that all trees will thrive equally on one piece of ground, let it be in as perfect a condition as it may, is a statement of doubtful accuracy. But to say that they do not require soil, or are unaffected by the condition of the ground, is to exhibit a degree of ignorance which the most primitive woodman would be ashamed of. Neither air nor water alone can take the place of those small quantities of salts in solution which build up the tissues of plants, and the supply of which depends upon the depth and porosity of the soil combined with its chemical composition. *A. C. Forbes.*

The Week's Work.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Water-Lilies.—The growth of the hardy Nymphæas and other water-plants is remarkably early this year, so that it will be advisable to divide or replant during the present month, there being, as yet, few young leaves to get damaged. In ponds which cannot be emptied of the water, a good method of planting is to fill the requisite number of wicker-baskets, generally known as "rounds," with loamy soil and manure, planting in each a few good crowns, and then to sink these in the desired positions. For stronger-growing Nymphæas, such as Marliac's varieties, N. albida and N. chromatella, and N. tuberosa and N. Gladstoniana, a larger body of soil is better. In the case of ponds the water of which can be let off, mounds of soil held together by surronnding them with big stones should be provided, and the pond quickly refilled. It may be remembered that a large number of crowns on a plant is not conducive to free-flowering, nor to the production of fine flowers, and a division of the crowns becomes in time an absolute necessity, especially with varieties that have a tendency to push their crowns above the water. In addition to the Lilies themselves, attention should be paid to the many beautiful plants which are at home on the banks, either partially submerged or in the moist soil adjacent. Many are native plants, such as the flowering Rush, Butomus umbellatus, which requires frequent division in order to get it to flower freely; the Water Plantain, Alisma Plantago, and the common Sagittaria, are suitable for positions beneath the water-level; and to these may be added the new double form of Sagittaria and Pontederia cordata. Out of the water, but where occasional flooding can take place, a host of things may be grown, any of which may be planted at this date. These should include the Marsh Marigold, Myosotis palustris, Funckias, Spiræa Aruncus, Trollius, Œnothera Youngii, Senecio clivornm, and, where space can be found for them, some good clumps of the great Water Dock, Rumex Hydrolapathum.

Tropæolum speciosum.—Many gardeners fail to establish this brilliant flowered Tropæolum. I find that it succeeds best when planted in the spring in a position where its roots may always be in cool soil, planting deeply. It prefers to climb over living shrubs, and is seen to good effect on Yew-trees and Hollies. I have just lifted some roots that were planted as tiny bits

some three years ago, and many of these are now as thick as a man's finger. They have been growing at the foot of a hedge of Irish Yew, where the soil is shaded and cool.

Tropæolum tuberosum.—For covering a large space in a short time, this is an excellent plant; and though the tubers are not hardy, it is easy to lift and store them in the winter like Potatos. The tubers should now be planted against a wall or fence facing east, or other cool position, in sandy, perous soil.

Planting.—Where the hardy, mossy Saxifrages, Herniaria glabra, and other plants of low growth, are used in mosaic-beds, these should now be planted if the beds are ready to receive them, so that they may become established before the usual half-hardy and tender plants are planted.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Strawberry plantations. — If animal manure could not be afforded the plants in the autumn, an application of some approved kind of fertiliser should now be afforded, such as Peruvian guano or some other rich in ammonia and nitrogen. After scattering the manure between the rows of plants, let the ground be stirred with the Dutch-hoe. If the earliest fruits are taken from plants set out on a south border, cold frames may at the present time be placed over the plants, which will have the effect of hastening the ripening of the crop by about a fortnight. The plants must be afforded air abundantly in the daytime, and the lights should be tilted a little at the back at night, in order to prevent the foliage becoming drawn, and water applied from time to time as may be required.

Hints on Work in General.—Apple, Pear, and Plum trees which were grafted last spring, should have all the shoots springing from the stocks rubbed off by hand, and the grafts made safe by fastening them to stakes secured to the main branches. Any grafting that remains to be carried out should receive immediate attention. The Gooseberry sawfly-caterpillars are now appearing on the bushes, and hand-picking must be resorted to forthwith to lessen their numbers, and be assiduously followed up. Ply the Dutch-hoe between all small fruit-bushes in order to check the growth of weeds and improve the surface soil. The copious showers of the past few weeks have been of great benefit to vegetation in this neighbourhood, and to orchard trees in particular, the soil having been very dry at a depth of 1 foot, and artificial applications of water had to be resorted to after planting. If glass copings are furnished to the Peach-wall, the border near the foot of the wall should be afforded water copiously, as the soil, there, is sure to be unhealthily dry for several feet in depth.

FRUITS UNDER GLASS.

By T. H. C.

The Pine-stove.—Afford manure-water on every occasion when moisture is afforded to the bearing plants, except to those whose fruits are approaching ripeness, to which a dryer soil and atmosphere are advantageous. Those potted in fruiting-pots in February last will be growing freely, and should not suffer lack of moisture at the roots. In order to promote sturdy growth, apply air on every favourable opportunity, commencing early in the day in fine weather when the thermometer in the Pine-stove indicates 75° and 80°, closing early in the afternoon, and allowing the temperature to run up to 85° and 90° by sunheat, at the same time syringing the plants, walls, and other surfaces; and afford a night temperature of 65°, and a bottom-heat of 85°. Do not syringe any plants coming into flower, but keep the air of the house drier until the young fruits form. Place in their fruiting-pots any plants which may not have been repotted in March, employing 10-inch pots for Queen Pines, and 11 and 12-inch ones for Smooth Cayennes and other Pines of large growth. Plunge the pots in a bottom-heat bed of 85° to 90°, keeping the plants close for a few days, syringing the foliage, walls, &c., every afternoon, and at all times maintaining a moist atmosphere. Remove suckers from fruiting plants, and according to their size place them in 4 or 5-inch pots, plunging these in a brisk bottom-heat as close as possible to the glass in the propagating-pit. If suckers are scarce, the old plants after fruiting may be stripped of their leaves, and the stools placed in leaf-mould on the surface of the propagating-bed, when in time the dormant buds will produce sturdy suckers, which may be severed from the old stools and potted. Crowns may also be saved and treated in the same manner.

Vines Raised from Eyes.—As soon as the plants are fit, shift them from 5 into 8-inch pots, and do this before they become pot-bound. A compost consisting of two-thirds roughly chopped-up turfy loam, and one-third of finely-sifted horse-dung and leaf-mould in equal parts, a small quantity of charcoal and fine mortar-rubble in quantity more or less according to the texture of the loam, and with a 6-inch potful of Thomsen's Vine-manure to every barrow-load of this compost, will be found suitable. Let the compost be made of the same temperature as that of the house in which the young Vines are growing, and pot the Vines firmly in clean well-drained pots. Let the day temperature of the vinery be maintained at from 80° to 85°, afford air in amount according to the state of the weather, with abundance of moisture in the atmosphere. The night temperature should be kept at 70°. Syringe the foliage lightly in the afternoon on fine days at closing time. Pinch off all tendrils, and tie-in the growths to stakes as they extend.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury.

Oncidium ornithorhynchum, a free-growing and florifereus species, should be afforded fresh rooting medium, if necessary, as soon as the new growths are a few inches in height.

Miltonia vexillaria is now completing its growth and developing flower-spikes; the roots will therefore require much moisture. An occasional spraying of the plants on bright days is very beneficial, and does much to keep thrips in check.

Masdevallias.—M. Veitchi, M. Harryana, and others, now need an abundant supply of water at the root, as well as overhead syringing in fine weather. At about this date, the young growth and the flower-spikes, which come simultaneously, are making progress.

Lælia pumila, L. Dayana, and L. præstans.—These inmates of the cool intermediate-house are now commencing to grow, and repotting or top-dressing may be attended to. Turn out all plants of which the potting-materials are sour or decayed, remove all decayed roots and useless pseudo-bulbs, and thoroughly examine the plants for scale and mealy-bug, which may be easily done. Small pans are the best receptacles for those species with short pseudo-bulbs. When the plants are suspended from the rafters of the house, the results are usually satisfactory. The best kind of compost for them consists of equal parts turfy-peat and leaf-mould, with a small quantity of sphagnum moss and sand added, the surface of the compost being finished off with a layer of fresh sphagnum-moss and turfy-peat. The usual precaution as regards water will be necessary after repotting; although at other times when growing, the plants may be afforded water freely at the root. Flowers produced in a cool intermediate-house temperature are usually of a better colour than these obtained in warmer houses.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Euphorbia pulcherrima (*Poinsettias*). — These plants should now be brought into a house or light pit, having a minimum warmth of 55° to 60°, and afforded full light. I find that an early Peach-house near the front lights, which are opened a little during bright days from now onwards, the right sort of place for them, the lateral shoots coming stout and firm, are not so liable to suffer from damp as when the plants are placed in a close frame or case to form roots. Stock plants should be shortened to firm wood; and if last year's plants, let them be cut back to within two buds of the base. These prunings may be cut into 3-inch lengths, especially the shorter pointed butt-ends, cutting them close up to a bud, dibbling them into 6-inch pots filled with sandy soil, and placing the cutting-pots in moist heat, where many of them will form roots. Do not afford much water to the roots of old plants till the buds break, but syringe them two or three times daily.

Hippeastrums.—Preserve the foliage by tying it to stakes, and as the plants pass out of flower stand the pots in a sunny position in an early Peach-house or vinery if no proper house exists. Afford the soil a fair quantity of water, plying the syringe freely amongst them morning and afternoon. Seedlings should be afforded a night temperature of 60°, and be placed near the glass; and if it be found that the roots require more space, shift into 4-inch pots. Three to five years will elapse ere the young plants show flowers.

Current operations.—All kinds of hardy bulbs which have flowered under glass should be hardened off in cold frames, and afterwards planted in borders. Lachenalias past their best, and Freesias, should be stood on a shelf in a well-ventilated house. Any old tubers of Cyclamens, if kept for flowering another year, may be stood in a cold frame and have water gradually withheld. Insert the following cuttings as soon as procurable: Eranthemum, Linum, Centrapogon, Celeus thyrsoideus, Euphorbia jacquiniflora, Plumbago coccinea, Thyrsacanthus rutilans, Justicias, and fibrous-rooted Begonias in variety for winter flowering; affording them a sandy soil and a brisk bottom-heat in a close frame.

THE KITCHEN GARDEN.

By John Flemino, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Potatos.—The wet weather experienced lately has delayed planting, especially on heavy and retentive land; but no opportunity should now be lost of carrying out the work as the state of the land will allow. Keep a close watch on Potatos coming through the ground, and draw soil over the growths, and when these are too high for covering with soil, some other means of protection, such as bracken, long litter, or Spruce branches must be found when frost threatens. Crops growing in pits or hotbeds should be afforded plenty of air at all times when the weather will safely permit.

Cardoons.—For raising an early supply of plants, sow three seeds each in 3-inch pots, and place into warmth of about 50°; thin the seedlings to one, and when the pots are filled with roots, shift into 48's. When established, gradually harden off, and plant out in trenches towards the end of next month. Trenches for this plant should be thrown out at 4 feet apart, 2 feet deep, and 1½ foot wide, the bottom of each being broken up with a digging-fork. On this, when levelled, place a layer of rotten stable-dung, and cover with soil to the depth of 4 inches. In retentive soils, Cardoons should be grown on the flat. Later supplies may be raised by sowing patches of seeds in May in a similar sort of trench at 18 inches from patch to patch, thinning out the plants to one each per patch.

Salsafy and Scorzonera.—Sow in drills drawn at 1¼ to 1½ foot apart, and 1 inch deep, and eventually thin the plants to 9 inches asunder. This plant succeeds in a light sandy loam heavily manured the year previously, and trenched or double-dug. Manure should be applied in the autumn or winter, no recent manure being nearer to the surface than 15 inches, or the roots will be much forked. The main sowing need not be made in the south before the first week in the month of May.

Ridge Cucumbers.—Sow the seed singly in small pots, and place in a frame having a warmth of 55° to 60°. Sow also in the same manner Vegetable-Marrows for the main crop, Gourds and Pumpkins, growing them on without a check, and gradually inuring them to cooler conditions.

General Remarks.—The Dutch-hoe should be constantly plied between the lines of nearly all growing crops, the more the surface is stirred the better and quicker the growth. Doing this systematically at this season lessens the growth of weeds. Attend to the thinning and weeding of various kinds of vegetables, and make good all failures from whatever cause. See that everything is done where necessary for the protection of seed beds and lines of vegetables and salads, from birds, vermin, and slugs.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, APR. 18—Fifteenth Quinquennial International Exhibition at Ghent, Belgium, from 18th to 25th inclusive.

MONDAY, APR. 20—Surveyors' Institute Meeting.

TUESDAY, APR. 21—Royal Horticultural Society Committees Meeting, Lecture on "Horticultural Education." National Auricula and Primula Society, Show at Drill Hall. Brighton Spring Show (two days).

WEDNESDAY, APR. 22—Royal Botanical Society Meet.

SALES FOR THE WEEK.

WEDNESDAY, APRIL 22—
Palms, Bays, Azaleas, Cannas, Japanese Maples, Begonias, &c., at Stevens' Rooms.—Plants, Palms, &c., from the Continent; Perennials, Border Plants, Liliums, Carnations, &c., at 12. Japanese Liliums, Peonies, Acers, Tuberoses, &c., at 3 30, at 67 and 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY, APRIL 24—
Odontoglossum crispum, imported: Dias, Catt eya labiata, autumnalis, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —49·2°.

ACTUAL TEMPERATURES:—
LONDON.—*April* 15 (6 P.M.): Max. 49°; Min. 35°; frost at night.
April 16 (Noon): 46°; fine, clear.
PROVINCES.—*April* 15 (6 P.M.): Max. 45°, Scilly; Min. 35°, Shetland.

"New Plants."

THE large collection of dried specimens exhibited by Messrs. JAMES VEITCH & SONS at the last meeting of the Royal Horticultural Society was not of a character to arrest general attention; but to the plant-lover it presented special interest from the novelty of the plants, their botanical interest, and in many cases from their evident value as garden-plants. They were collected in western and central China by Mr. E. H. WILSON, who traversed much of the same ground as Dr. HENRY, and who has succeeded in introducing to Messrs. VEITCH's nurseries many of the extraordinary plants found in those regions by Dr. HENRY, as well as by Father DAVID, DELAVAY, and others. Those who think the possibilities of systematic botany and the introduction of "new plants" to be exhausted, will see cause in this wonderful exhibit to modify their opinions. We have already figured several of the Conifers, as well as the new winter-flowering Jasmine, and in our last issue we gave an illustration of the very remarkable Davidia involucrata, and of a Cephalotaxus new to gardens. In the future we hope to have the opportunity of figuring many more, and to give descriptions from the pen of Mr. HEMSLEY, Mr. WRIGHT, and other botanists. Their value and interest as garden-plants are greater and more varied than have been seen in any similar collection for many years. For instance, there is an Aconite (Aconitum Hemsleyanum), climbing like a Clematis; a Primrose with blue flowers (Primula ovalifolia), growing up close to the snow-line; Brandisia racemosa, with scarlet flowers; Dipteronia sinensis, with winged fruits like a Ptelea; Rodgersia æsculifolia, with leaves like a Horse-Chestnut, but with large, many-flowered panicles like a Spiræa; Liriodendron chinense, a Tulip-tree, closely allied to one with which we are familiar from the United States; Magnolia hypoleuca, one of the finest of Magnolias; Actinidia chinensis, Schizophragma integrifolia, Deinanthe bifida—but we cannot give a catalogue in this place. Let it suffice for us to congratulate Mr. E. H. WILSON and his employers, the Messrs. VEITCH, on the success of their enterprise, and the lovers of hardy plants on the rich promise of novelty, beauty, and interest which is held out to them—a promise which, as we have said, is already partially fulfilled.

Ferns.

THE President of the British Pteridological Society has done a good thing in publishing this convenient handbook.* There is no one better fitted than he to undertake the task, and we may at once say that he has accomplished it satisfactorily. The variation among Ferns is infinite, and the names given to the several "finds" are proportionately numerous. All and everyone of these variations is important in its way, and the botanist or biologist cannot really afford to overlook one of them till he has learnt the lesson it is calculated to afford. But the great majority of Fern lovers and of Fern growers are not so inquisitive. They look upon Ferns mainly for their grace and elegance. The space at their disposal is limited, and hence selection becomes imperative. The expert knows how to select for himself; but the novice, or he who has only recently shown symptoms of Pteridomania, needs guidance, or he may run the risk of filling his house or his garden with forms that are more curious than beautiful. There are, however, some plant-lovers who would deliberately prefer the curious to the merely beautiful, on the score of their enhanced interest. To such persons we may at once say that in spite of his professed exclusiveness, the author is really catholic in his sympathies; and not the least valuable part of his book is the appendix devoted to the life-history of Ferns and their modes of reproduction, regular and irregular. Some of the most notable discoveries in this department have been made by the author himself, who has done well to reprint his communications originally made to the Linnean Society. The bulk of the book, however, is made up of tabular matter in which are set forth for each of the selected variations, the locality where first found, the name of the discoverer or raiser, and a concise exposition of the distinctive features or characters. Considerably over a hundred forms of the common Hartstongue are thus enumerated, so that a specialist who devoted himself to growing the forms of Scolopendrium vulgare alone, would find quite enough to fill his garden and to engage his whole attention. "Rather monotonous," we fancy we hear someone say, but that remark could only come from someone who does not know. We all know the ordinary Hartstongue and some may casually have noticed some trifling variation in it; but few can have the faintest idea of the extent of variation that has been brought to light by the Fern-lover, and which are cultivated in the collections of Fern-lovers such as the author of this book.

"Nature," says Mr. DRUERY, "has varied every feature; the normally single stalk and rachis is split up and multiplied in a practical infinity of ways, culminating in KELWAY'S *densum*, a veritable ball of moss; the rounded lobes at the bottom she has expanded, lengthened, and tasselled, and even given them the importance of individual fronds; the plain flat strap she has elaborated into ornate frills, and the simple straight edges into deeply cut fringes; the bluntly-pointed frond-tip has in one direction been expanded into finely divided tassels; and in another, abruptly cut off and finished up with cups and rosettes, and thorns behind or before; the smooth surfaces above or below she has broken up into linear ridges, or decked with rough excrescences in many varied styles; and finally, having seemingly exhausted her ingenuity of plan in all these special particulars, she combines several of the various eccentricities in one and the same individual . . . . and stamps the features of a dozen diverse parents upon one and the same plant."

This enumeration by no means exhausts the potentialities of this seemingly well-conducted Fern; for instance, no mention is made of the form bearing the spore-cases on the upper surface.

It would be an improvement in a second edition if the author would arrange the varieties in groups according to their leading peculiarities. We know that the forms are too numerous and too intricate to permit of any absolutely accurate classification, for the next "find" might break down the pretty grouping of the author; but this occurs more or less in all natural objects, and an arbitrary classification is a great help to a student, even if it be arbitrary.

What has been said of the Hartstongue applies almost equally well to the Lady Fern and the Shield Ferns (Polystichum), so that we are metaphorically left gasping with admiration and wonder, why and how all this variation occurs. Climatal variations, diversities of soil and aspect, by no means suffice to afford an explanation; nor is it all clear why British Ferns in particular should be so protean. There must be, there are, "Pteridological societies" and "Pteridologists" on the continent, and in the United States! but still the British Islands are the headquarters of these "sportive" creatures. We use the word "sportive" with compunction—we do not believe in "sports," or "freaks of nature." It is only dense ignorance that sanctions the use of terms which are essentially false in their significance. Our successors will know better, and will ascertain, as we have not yet been able to do, the why and wherefore. And here is one point in which we are not in full sympathy with the author when he advises the beginner when overlooking his seedlings to ruthlessly throw away inferior or defective ones:—

"No selective cultivator is worth his salt whose heart is too tender in this respect; he must be a perfect Herod, and massacre the innocents remorselessly if [the "if" is necessary here] he

* *The Book of British Ferns*, by CHAS. T. DRUERY, F.L.S., V.M.H. (*Country Life* Office, 7 to 12, Southampton Street).

aim at a good collection. . . . Moral: If a Fern is defective in its first four or five fronds—Verdict: Dust-heap."

Now this, in our opinion, is out-Heroding Herod. It is good advice for those who grow Ferns to sell them; useful counsel to those blind admirers whose exclusive object of worship is beauty; but to the Nature-student to destroy these "mongrels," and ignore the evidence they give, is as if one were to set fire to the Record Office because most of the documents therein contained are, to use a homely phrase, not much to look at. Mr. Druery's practice is better than his creed, and his discretion in this matter is better than his valour.

There are numerous illustrations; but the "half-tone" process is not well adapted to bring out the exquisite beauty of the fronds. We must not omit to mention that the cultural hints are eminently judicious, and what we should expect from so experienced a cultivator, so that the book may be highly commended to the notice of all descriptions of Fern-lovers.

Mr. Archibald Barron.—As these pages are going through the press, we learn of the death of this noted gardener, on the 15th inst. Mr. Barron had long been in ill-health, but the announcement of his death will be received with sincere sorrow by his many friends, who with us will tender their deep sympathy with the widow and her family. In our next issue we shall give an account of his career as a gardener.

Royal Horticultural Society.—The next meeting of the Fruit and Floral Committees of the Royal Horticultnral Society will be held on Tuesday, April 21, in the Drill Hall, Buckingham Gate, Westminster, from 1 to 5 p.m. The National Auricula and Primula Society will hold its annual show at the same time and place. A lecture on "Horticultural Education" will be given by Mr. R. Hedger Wallace at 3 o'clock.

—— At a general meeting of the Society, held on Tuesday, April 7, seventy-eight new Fellows were elected, among them being Gen. the Right Hon. Sir Dighton Probyn, V.C., G.C.B., G.C.V.O., Sir Archibald Edmondstone, Bart., Sir H. M. Hawley, Bart., Lady Percy St. Maur, Lady Wharton, Lady Stewart, Rear-Admiral R. F. Britten, R.N., Col. Dudley Ryder, and the Hon. Mrs. A. M. Dale, making a total of 546 elected since the beginning of the present year.

National Sweet Pea Society.—The Secretary of the Society informs us that the statement relating to the election of judges made by our correspondent, "R. D," in our issue of April 4, is inaccurate.

Proposed Gardeners' Dinner and Reception.—Through the kindness of the Horticultural Club, a meeting of gardeners and members of the Fruit and Floral Committees of the Royal Horticultural Society was held in one of the Club rooms on Tuesday, April 7, for the purpose of considering a proposal to arrange a gardeners' dinner and reception in London on the occasion of the holding of the great fruit and vegetable exhibition at Chiswick in the autumn. Mr. Owen Thomas, V.M.H., was elected Chairman; Mr. Jas. Hudson, V.M.H., Treasurer; and Mr. A. Dean, Secretary. The following constitute the Committee at present, but have power to add others if desired:—Messrs. Norman, V.M.H., Reynolds, Willard, Jaques, Beckett, Fyfe, Woodward, Gibson, Markham, Dixon, Howe, McLeod, and Fielder. It was resolved that the dinner take place on the first day of the Chiswick show, that ladies be included in the company, that the charge per ticket do not exceed 5s., and that it be held in a central part of London. It was also resolved to invite some eminent amateur horticulturist to preside. Further, it was agreed to invite the co-operation of eminent gardeners in various districts to act as provincial stewards, with a view to render the dinner popular and a great success. A preliminary list was prepared, and it will be finally arranged at the next meeting of the committee on May 5. Whilst primarily a gardeners' dinner, to which it is hoped many country gardeners will come, all horticulturists will be welcome. The great object in view is to make the gathering one of pleasant nature, such as all present may look back upon with the liveliest satisfaction. No real gardeners' dinner has been held in London since the one at St. Martin's Hall in 1866, which was held in association with the great International Exhibition at South Kensington.

"Chinese Plants."—It is with great satisfaction that we have to announce the publication by the Linnean Society of another part of the Enumeration of Chinese plants. It contains the Amaryllids, the Irids, the Lilies, and a few other allied Orders, worked up principally by Mr. C. H. Wright. Thirty-two species of Lilium are enumerated. It is mentioned that the bulbs of L. tigrinum are eaten by the Chinese, and the dried flowers used in soups, and as a remedy for lung complaints. So many novelties have been introduced since this Enumeration was commenced, that it is to be hoped a supplementary list will be provided.

Accident to a Nurseryman.—Mr. W. J. Jefferies, of Cirencester, met with an accident whilst walking on the footpath of Watermoor Road recently. The slippery state of the path caused Mr. Jefferies to fall, and to fracture the left arm in two places.

Volcanic Ash from Barbados.—We have received from Dr. Morris, C.M.G., Imperial Commissioner of Agriculture for the West Indies, a sample of volcanic ash that fell at Barbados between 11 a.m. and 5 p.m. on Sunday, March 22, 1903, as the result of an eruption of the St. Vincent volcano, Soufrière, distant 96 miles. The sample was collected at Chelston, Bridgetown, on sheets laid out on the lawn, and brought in and weighed every hour. It is free from all extraneous matter, and may be regarded as typical of the ash that fell on this island. It is estimated that the weight of ash that fell per acre was about 6,000 lbs. av. At an average rate of 3 tons per acre, this would be equivalent to about 300,000 tons for the whole island. The value of volcanic ash as plant food is well known, and further experiments will now be made to ascertain the exact constituents of the recent fall, and its consequent utility.

Napoleon's Gardening Tools.—A French correspondent of *The Ironmonger* says that an account-book kept by Napoleon at St. Helena figured among a collection of autographs offered for sale at the Hôtel Drouot recently. It contained a record of the ex-Emperor's household expenses at St. Helena from March, 1818, to April, 1821, each month being added up separately. The corrections and calculations in francs are in the Emperor's own handwriting; the accounts themselves appear to have been kept by Pierron, his *maître d'hôtel*, and the dates of settlement are noted by Montholon. It is well known that Napoleon took to gardening for exercise, and in the month of December, 1819, Pierron entered in the book the following amounts: "Four watering cans (arrosoirs), £18s.; two pairs shears (cisailles), £3; two hatchets, £4 10s." A French journalist, noticing the costly character of hardware at St. Helena, remarks:—"Surely Napoleon must have been honoured by such charges. Prince Demidoff, when the head waiter marked 'One Orange, 20f.,' on his restaurant bill, exclaimed 'Oranges must be very rare this year.' 'No, monseigneur,' was the reply, 'it is princes that are rare this year.'" And doubtless the worthy tool-dealer of St. Helena did not have an Imperial customer every day.

The National Horticultural Hall.—Mr. R. Milligan Hogg, has contributed £105; Sir John Kelk, £25; and Mr. Robert Gordon, £50, towards the building fund.

Luxembourg Horticultural Exhibition.—It is proposed by the Cercle Grand Ducal d'Agriculture et d'Horticulture of Luxembourg to hold an exhibition in that city in August. The occasion is the Jubilee of the Society, and every effort will be made to celebrate it fittingly. The eight sections are devoted to exhibits connected with:—I. (1) Live-stock of the farm and garden; (2) Agricultural and horticultural machinery and implements; (3) Dairy work; (4) The cider industry; (5) Forestry; (6) Vine-culture and wine-making; (7) Horticulture, with classes for Orchids, Palms, Climbing Plants, Greenhouse Plants, Begonias, Roses, &c.; II. Ornamental and decorative plants; III. Horticultural accessories; IV. Cut flowers, bouquets, and decorations; V. Apples, Pears, and other fruits; VI. Market Gardening; VII. Preserved fruits and vegetables; VIII. Manures, seeds, and food stuffs. More detailed information will be issued by the Society later in the season. Application should be made to M. Charles Siegen, Secretary of the Society, 21, Boulevard Royal, Luxembourg.

"The Timber Trades Journal and Saw-mill Advertiser."—The thirtieth special annual issue of this publication is before us, and in both letterpress and illustrations constitutes a wonderful record of valuable work. A special feature of the number is the article on the white-wood trade of Austro-Hungary, Roumania, and Bosnia, with illustrations of the wood-working industries of those countries, and some account of the prominent shippers and their establishments. The great development of the trade with Galatz, on the Danube, is considered, and there are special articles on machinery as required in the conversion of wood by sawing, planing, joinery, turnery, &c. There is a copious review of the import timber trade of Great Britain and Ireland, and the Continent, as well as statistical articles on the trade of the leading exporting countries. In fact, every special branch of the wood trade and its dependencies is set forth, and readers will find here every information they may desire of the progress of trade, and the machinery to carry it on.

The "George Monro" Concert Committee.—The committee have given a donation of £5 5s. each to the Gardeners' Royal Benevolent Institution, and the Wholesale Fruit and Potato Trades' Benevolent Society; also £2 2s. each to the Surgical Aid Society, and the Charing Cross Hospital, being part proceeds from the recent successful concert held at the Holborn Restaurant.

Exhibition Schedules.—Amongst the schedules of prizes to be offered at horticultural exhibitions during the present year, we have received the following:—

The Durham, Northumberland, and Newcastle-upon-Tyne Botanical and Horticultural Society will hold its summer exhibition at Newcastle on Wednesday, Thursday, and Friday, July 22, 23, and 24. There are open classes for stove and greenhouse plants, cut flowers, table decorations, and fruits; the money prizes offered being considerable. Similar classes have been arranged for amateurs. The secretary of this old Society, which was established in 1824, is Mr. I. B. Reid, Cathedral Buildings, Dean Street, Newcastle-on-Tyne.

The Wolverhampton Floral Fête.—This annual exhibition of horticultural produce becomes of greater importance each year. The fifteenth

show will take place on Tuesday, Wednesday, and Thursday, July 7, 8, and 9, in the very pretty West Park. The prizes offered in the open classes are of the most tempting character. In that for a group of plants arranged for effect, on spaces not exceeding 350 square feet, the 1st prize will be £25, and the remaining three prizes make a total of £57 10s. for the one class. Valuable prizes are offered in all the plant classes, particularly in those for a collection of sixteen stove and greenhouse plants, and a collection of Orchids arranged on a space of 12 feet by 5 feet. Roses are generally staged as well at the Wolverhampton show as anywhere. The exacting class for seventy-two distinct varieties is still retained, and prizes amounting to £42 are offered, the 1st prize alone being £20. Indeed, the encouragement offered to rosarians is of the most liberal nature. Floral designs, table decorations, Sweet Peas, and other cut flowers are provided for. The dates are too early for large exhibits of fruit, but a number of competitive classes are provided for Grapes, Peaches, Melons, Strawberries, &c., and for vegetables. The secretary is Mr. W. E. Barnett, Snow Hill, Wolverhampton.

The Richmond (Surrey) Horticultural Society will hold its twenty-ninth annual show in the Old Deer Park, Richmond, on Wednesday, July 1, and, as usual, the schedule includes a comprehensive number of classes for plants and for cut flowers, fruits, and vegetables in season. The secretary is Mr. C. R. Kino, 61 & 62, George Street, Richmond.

Brussels.—Many visitors to the Ghent show will be desirous of visiting the establishment of M. Linden, at Moortebeeke, where they will find much to interest them, and we may add to surprise them. It is easily reached by tram from the Bourse, in the centre of Brussels; or in about ten minutes or a little longer in a cab.

Bruges will offer not a few attractions to visitors. The nurseries of Messrs. Sander & Sons are on the outskirts of the town, and are amply worth a visit. The same may be said of the nursery of M. Vincke du Jardin.

Grafted Abutilons.—The following letter tells it own tale:—"I send for your inspection four varieties of Abutilons, all from the same stock, the large orange-red, the white (Boule de Neige), and the pink having been engrafted upon the yellow variety. As you will observe, the leafage in all cases is flecked, marbled, or splashed with golden variegation. This has resulted from the double yellow A. Thomsoni having also been grafted on the same stock. The plant which bears and produces all these varieties, belongs to Mr. Geo. E. Low, and is growing in his greenhouse at Glenageary Hill, Kingstown, near Dublin. Mr. Low is a stock and share broker, and his leisure is devoted to gardening and photography, both of which he does well. Mr. Low was led to graft varieties on to an old stock Abutilon — Golden Fleece by name, I believe, because separate plants took up too much room from other favourite plants. The results have proved highly satisfactory, and not only can three or four or more Abutilons be grown on one stock in this way, but, as Mr. Low pointed out to me, the individual flowers produced by the yellow-flowered foster plant are larger and brighter in colour than when growing upon their own roots separately. Broadly speaking, I am opposed to the practice of grafting most things, except fruit trees, having seen the confusion and losses that occur with grafted Conifers, Rhododendrons, Lilacs on the wild Privet, the exquiste Prunus triloba grafted on a common Plum, &c., but I must say that there are, as in Mr. Low's case, beautiful exceptions, even amongst flowering shrubs. Mr. Low's very successful experiment grew out of a want of room, a dire necessity, but it is not without interest from a scientific point of view." *F. W. Burbidge.* [The variegated Abutilon has long been known to possess the property of, as it were, inoculating the stock upon which it is grafted (see *Popular Science Review*, April, 1871). These cases have become more intelligible since Gardiner, of Cambridge, demonstrated that the protoplasmic contents of one cell might and do pass from one cell to another. The Cyclamen sent is a seedling of Mr. Low's, and might be called "Blush Queen," or "Apple Blossom," and if it can be fixed by self-fertilisation will prove a novel addition to these charming winter and spring flowers. Ed.]

Fruit Trees along High Roads.—We have often alluded, from personal observation, to the continental custom of planting fruit trees along the borders of roads, and now we find that the matter was discussed at the Pomological Exhibition held last autumn at Amiens. M. Wagner, delegate from the Grand Duchy of Luxembourg, announced that for the last thirty years in Wurtemberg, the Palatinate, and the Grand Duchies of Baden and of Luxembourg, the roadside avenues of Poplars have been replaced by double or single rows of cider Apples and perry Pears. In Luxembourg, the State encourages the formation of orchard nurseries, and often begins the planting of the streets, leaving the future care and profits of the trees to the inhabitants around. Syndicates connected with the highway authorities give instructions to the workmen who have the care of the roads, and the fruit is put up for auction. The road-men are proud of their trees, and tend them with care, though formerly they held them in contempt. In point of fact, plantations fifteen years old yield 150 francs per kilomètre. All wide roads are planted with double lines; one row of trees suffices for roads of secondary width, and yet throws no undue shade on adjacent crops.

Stock-taking: March.—The record for the past month as given in the Board of Trade Returns, is truly a wonderful one—the increase in values of both imports and exports is most marked, notwithstanding that comparisons are made with a month in which there happened to be two holidays. The value of the imports for the past month is £46,916,524, against £40,897, 861 for the corresponding period in 1902, a gain of £6,018,663. It is needless to indicate the separate gains, but that on Wheat is exceptionally large, followed by nearly every item on the list, of both dutiable and duty-free products. Here is a brief summary:—

Imports.	1902.	1903.	Difference.
	£	£	£
Articles of food and drink—duty free	7,937,776	8,855,972	+888,196
Articles of food & drink—dutiable	8,095,335	9,410,846	+1,315,511
All other Imports...	24,834,750	28,649,706	+3,814,956

The food of the worker is placed in strong contrast with the material supplied for the exercise of his industry — his contribution to the wealth of the nation. Respecting Tea, we may note that it is proposed to place a very slight tax on exports from India, the resulting cash being placed to the credit of improvements in the production of Tea itself. It may also be noted, respecting Ceylon Tea, that the total exports from that island last year amounted to 149,047,048 lbs. avoirdupois, as against 146,726,066 lbs. in 1901, an increase of 2,320,982 lbs. There is coming on to the market for use in greenhouses, &c., a large quantity of slate slabs from the United States, used for floors, shelves, and tables. There are no corrected figures for last year, but in 1901 some 32,474,302 pieces were placed on the market, valued at £196,343. The section devoted to glasshouse culture, &c., is not specially enumerated, but doubtless the sum total is worth consideration by all interested in the trade. The increase in timber imports is £185,000. Haulage to market from field and garden is being stimulated by the importation of motor cars, the increase in value for the past month being £136,000. The following table tells the tale respecting the month's supplies of fruit, roots, and vegetables:—

Imports.	1902.	1903.	Difference.
Fruits, raw—	Cwt.	Cwt.	Cwt.
Apples	115,804	361,572	+245,768
Apricots and Peaches	40	98	+58
Bananas: bunches	168,703	183,312	+14,609
Grapes	948	1,924	+976
Lemons	71,901	76,106	+4,205
Nuts—Almonds ...	6,163	8,557	+2,391
Others, used as food	59,186	33,706	—25,480
Oranges	923,939	983,474	+59,535
Pears	715	613	—102
Plums	50	269	+219
Strawberries	1	.....	—1
Unenumerated ...	5,187	5,065	—122
Vegetables, raw—			
Onions ... ...bush.	411,121	484,938	+73,817
Potatos ... ... cwt.	209,468	206,826	—2,642
Tomatos... ... ,,	35,060	85,133	+50,073
Vegetables, raw, unenumerated ...value	£59,781	£41,796	—£17,985

It is interesting to note, in addition to the above, that there are now at sea, in six great liners, belonging to three companies, some 118,000 boxes of Apples from Tasmania and Australia. In Canada, the Valley of the Saskatchewan is now included in the fruit-producing zone—emigration being now directed there, and the production of fruit being set forth as an inducement to emigrants. Well, the more the merrier. The value of the imports for the past three months is given as £133,618,995, as against £132,694,250 for the corresponding period last year, showing an increase of £924,745. On the subject of—

Exports,

we note that the March sales stand at £25,108,194, as compared with £22,217,238 for March in last year—an increase of £2,890,956. Of course, one must remember the holidays in March of last year, but for all that there is a large gain. In the matter of exports of food and drink there is a decrease shown of £42,717 (March, 1903, £1,024,110; last year, £1,066,827). The general record is an upward and satisfactory one—a characteristic of the returns for some months past. The value for the three months just ended is £72,787,266, against £67,798,688 for the same period last year—an increase of £4,988,578.

Obituary.

J. W. Withers.—We regret to learn of the death, on Apr. 13, of Mr. Jas. W. Withers, President and Manager of *American Gardening*, New York. Mr. Withers was a native of the Principality, and was well known some few years ago in the West Midlands and in the Esher district of Surrey, as an excellent gardener. He went to the United States, and for a year or two obtained employment in some of the leading nurseries, then joined the staff of *The Florists' Exchange*, and subsequently became President and Manager of *American Gardening*, with Mr. Leonard Barron as Secretary and Editor. Mr. Withers had long been in ill-health, and died in Jamaica, to the deep regret of his many warm personal friends.

BOWOOD.

[See Supplementary Illustration.]

In our issue for January 24 last, we published a supplementary illustration showing part of a terrace garden at Bowood, the beautiful residence of Lord Lansdowne, near Calne, in Wiltshire. The present illustration affords a view of the flower-beds upon the upper terrace on the south side of the house, which is laid out in the Italian style, and contains a marble fountain, and numerous other architectural adornments.

The view from the upper terrace, with the lake in the foreground, over the extensive park and magnificent woods, terminating with the downs in the distance, is a beautiful one. There are other flower-garden designs around the house, including a charming little garden recently made at the entrance to the private apartments of Lord and Lady Lansdowne. Since Lord Lansdowne has taken up residence at Bowood, after his long absence as Governor-General of Canada and Viceroy of India, he has made very extensive alterations and improvements in the gardens and pleasure grounds.

In the pleasure grounds and pinetum, which together cover a very extensive area, there is a large collection of very fine Cedars, Pines, and other Conifers; also some large specimens of evergreen Oaks. In recent years extensive groups have been planted of the finer kinds of evergreen and flowering shrubs, including hybrid Rhododendrons.

One of the features of Bowood consists in the long stretches and intervening glades of lawn, the charming distant and near vistas, some stretching a long distance into the park, others looking down to the lake, the banks of which on the opposite side from the pleasure grounds are covered with forest trees and shrubs. At the outlet of the lake there is a beautiful cascade, with a rockery, and some grottos.

During the last two years all the old glass-houses have been cleared away, and extensive ranges of fruit and plant-houses, and heated pits have been erected in their place. This work has been carried out in a thoroughly efficient manner by the well-known horticultural builders, Messrs. Mackenzie & Moncur.

Important improvements have also been carried out in the kitchen-garden and hardy fruit department. Lord Lansdowne, with his usual consideration for the comfort of those in his employment, has built a very commodious cottage for the young men in the garden. His lordship takes a keen interest in arboriculture and horticulture.

DIFFICULTIES IN PLANT CULTURE.

Above the well-known initials "W. W." in last week's number, some remarks appear on a few plants that defy the skill of cultivators in this country, so that a few notes by one who has cultivated some of the plants named, in another climate, may be of use.

A microbe is suggested as the cause of trouble, but because microbes are proved to be the cause of much that was till recently inexplicable, there is a danger of ascribing too much to those minute but powerful organisms. In the instance of Musa textilis, the Manilla Hemp, is the pot not the cause of its shyness? That a few plants should object to the restrictions of the pot is less surprising than that so many permit the hampering and contortions it involves; and the fact that there is no trouble with the Manilla Hemp in the open ground, when manure, water, and temperature are on the major scale, supports this hypothesis. To develop a plant of Manilla Hemp, a mass of rich soil, 5 ft. by 5 ft. by 2 ft. = 50 cubic ft., is necessary; and more area is required to expose its leaves to the light. Soil unoccupied by roots is known to be a source of danger in our damp plant-houses during winter, by developing organic acid; but if the Manilla Hemp be worth the trouble, why not prepare a mass of soil, place drain-pipes made of thumb-pots through it, plant a dozen seeds, or an offset of Manilla Hemp, in the centre, and surround it with temporary deep-rooting subjects, to be removed at intervals as the principal plant occupies the soil? This may be opposed to established tenets, but the restriction to traditional methods, instead of going back to fundamental principles, is responsible for much trouble in all branches of work.

Cephaelis Ipecacuanha has long been an interesting subject. The writer had a number sent to him in a very hot, dry climate, and takes credit for the fact that seven years later he had some healthy plants left to make over to a climate with moist air and moderate heat. The plants that endured the seven years' noviciate were grown in a frame with moist air and diffused light, such as is given to Anæctochilus in this country; the Ipecacuanha plant being comparatively hard-wooded, does not readily suggest such treatment, and the experience may be of use.

Santalum album grows freely in garden fences and shrubberies in India, and it has been suggested that a parasitical root-union with other plants is made; but Santalum apparently does not select its company as parasites usually do, and direct evidence of union with other plants is wanting, and it is probable that shelter and moisture while young, and unshaded light with moist air during maturity, would bring about the desired effect. *G. Marshall Woodrow.*

HOME CORRESPONDENCE.

GINSENG.—Your correspondent, "W. W.," writing from Kew, see *Gardeners' Chronicle*, April 4, p. 218, gives it as his opinion that Ginseng will not grow in this country, that it has been tried again and again at Kew, and also to his knowledge by several gardeners without success. All this is very discouraging. "There is evidently," "W. W." thinks, "some condition essential to its successful cultivation which is yet unknown to us, probably in the soil." If in the soil, why not have a sample of the soil in which it grows in New York State analysed, and if something is found in that soil which we in this country have not, surely some clever analytical chemist could tell us what we have to add to ours to make it equal, or as near an equivalent as we can get it. Ginseng and its near allies have a wide geographical habitat. It is found wild in the woods of Chinese Tartary, in the woods of Canada, and also in some of those of the United States. In so wide a range one would think there would also be as wide a diversity of soils. The plant was brought out of the wood with a view to give it better cultural conditions in the open, and shade provided as near as possible to that which it had in the woods; but the solitary plant observed growing on the rock garden at Kew had to struggle for life with conditions diametrically opposite to that of its natural habitat in the woods. Are our learned societies (of which we have a good many) going to give up all idea of further trial to introduce this plant to commercial cultivation in this country? Who knows but that Ginseng might turn out as helpful a panacea for depressed farming quite as much as did the Potato? We have the Royal Horticultural Society and the Royal Botanic Society of Regent's Park running neck-and-neck as to which of them will be first in doing most for the encouragement of scientific horticulture; therefore, why does not one or both societies offer a gold medal, say in the autumn of 1904 or 1905, for the best fifty roots, more or less? This would afford a substantial interest in its cultivation, and offer a field for aspiring young gardeners to win their spurs, and not unlikely also the presentation of a V.M.H. *W. Miller.*

WINTER TOMATOS. — Your Calendar-writer, "T. H. C.," in this week's *Gardeners' Chronicle*, in giving his valuable advice, says that his winter-fruiting Tomatos are still giving ripe fruit. I would be very glad if he would kindly say a word or two as to their culture: when the seeds were sown, the best variety, and about the temperature, and if grown in pots. I had Challenger well into the month of January, and I have now almost ripe Early Empress; and if I could get something from January till the middle of April, I could obtain ripe Tomatos all the year. *Pinkie.*

IRIS BUCHARICA.—I find that in my description of Iris bucharica (*Gardeners' Chronicle*, June 14, 1902, p. 385), I underrated its, at least possible, dimensions. I have now in flower a plant whose stem is 22 inches high; the lower leaves are 1 foot long, and 2½ inches wide at the broadest part. It bears no less than ten flowers, and in the flower the outer petal (fall) is 2⅞ inches long, by 1½ in. at its broadest, whilst the style is 2¼ ins. long by 1⅛ in. at its broadest. It is really a very fine plant. *M. Foster, Shelford.*

THE WEATHER IN THE MIDLANDS DURING MARCH. — We experienced some very exceptional weather during the past month: March winds we certainly had, but these did not come from the usual easterly quarter, but from the south-west. Rain fell during the month on twenty-four days, the total amount registered being 3¼ inches. Winds were very prevalent during the month, and on nine different days very strong gales were experienced, which on several occasions were accompanied by storms of rain and hail. On twenty-eight days the wind blew from points south to west, and from the east on three days only, i.e, the 1st, 3rd, and 14th. Very slight frosts were registered on four nights only. On the 24th, at 1.35 P.M., a decided shock of earthquake was felt in this district, lasting several seconds, causing pictures to swing against the walls, and crockery standing close together to jingle; no serious damage to buildings was, however, reported. As regards the outlook for this season's fruit crops, I may say, that up to the present everything appears to be satisfactory. Apricots have set a good crop, Damson trees are perfectly white with blossom, most of the varieties of Plums are in bloom, also a large number of Pear trees, and sweet Cherry trees on walls, are just about to open their flowers. Fruit-buds on the Apple are very numerous and developing rapidly. Bush-fruits are also showing well for fruit, and the foliage is expanding rapidly, which will assist greatly in the protection of the fruits from frosts. The Blackthorn was in bloom in this neighbourhood as early as March 16. *Geo. Woodgate, Rolleston Hall Gardens, Burton-on-Trent.*

APPLE KEEPING. — With the market about cleared, which, by the way, for all concerned, would have been better had it been done long since, a few notes may not be out of place now. At a recent Royal Horticultural Society Drill Hall meeting, March 24, a large proportion were not in a presentable condition. The generally recognised keepers were the most out of condition. The moral of all this is to show that even the most skilful grower cannot contend with the season when it comes to the question of keeping. This keeping, or rather the want of it, is due to skin defects; first, the spot; secondly, to immature skins. I am forwarding you samples of Wellington, Lane's Prince Albert, Annie Elizabeth, and Boston Russet; these I know are over-kept, yet I had them good at the same date last year. Of course, I hear some say, early gathering might have been the cause; but in my own case I left them later than usual to meet the season, the loss being very heavy with the falls—this, too, with otherwise sound fruit. The mistake made with the bulk of the growers has been in trying to hold on, when from Christmas forward the signs of non-keeping were so very plain. *Stephen Castle, April 4.* [The fruits sent were not in good condition. Ed.]

SEMELE ANDROGYNA (RUSCUS ANDROGYNUS). —The original specimen of this greenhouse evergreen climbing shrub, planted in the Crystal Palace at Sydenham, is now truly magnificent, covering a very large space of trellis, and with

numberless strong succulent shoots finding their way up into the roof of the building. There are other specimens about the building, seedlings raised at the Palace from seed secured by the late Mr. W. G. Head, on the only occasion, it is said, when it ripened seeds. The plant flowers in April, and it is possible to detect here and there a few solitary umbels of flower-buds. The border in which it is growing is occasionally top-dressed with rich soil. *R. D.*

PINK-COLOURED ANEMONE BLANDA.—Referring to Mr. Arnott's note, p. 212, it would be interesting to hear in what year Mr. Allen's seedling first flowered, as I flowered a bright pink seedling in 1897, and have now a good stock of it. The flowers have fallen, or I would have sent one for your inspection. *W. H. Divers, Belvoir Castle Gardens.*

THE POLLINATION OF PRIMROSES.—May I be allowed to make a few remarks on the article in your issue of April 11, p. 225, on the pollination of the Primrose? In the first place, the Primrose possesses nectaries, and consequently is an entomophilous flower, or one in which insects would naturally be looked to as the agents of fertilisation. Secondly, the stamens of the short-styled form exactly coincide in position with the stigma of the long-styled form, and *vice versâ*. This would enable the bees or moths, when dusted with pollen on the head and proboscis, to exactly place the grains from the one to the other on the relative stigmas. Thirdly, every entomologist knows that from the middle of March for a few weeks onward (that is to say, when the Primroses are in bloom), that the "Sallow Moths" (Tæniocampids), abound on favourable nights on the catkins of Salix caprea, and other Sallows, for the purpose of obtaining honey; and if on Sallows, why not on Primroses, which would by their pale colour be conspicuous at night time? On a good night it is not infrequent to see hundreds of moths on one Sallow tree. Fourthly, as regards the bee, Anthophora pilipes (I dismiss the butterflies named, as they could only have been hibernated specimens, and as such, would never be in abundance). This particular species of the genus Anthophora, contrary to the remarks of your correspondent, nidificates gregariously, forming enormous colonies consisting of many hundreds. It is therefore anything but a "rare bee;" the price in a list of Hymenoptera now before me being 2*d.* per specimen. The statement of "A Field Naturalist," as to these bees being unable to convey pollen, owing to the tongue being drawn up into its sheath after every visit, is also incorrect. It is true that the tongue is drawn up—as in other bees, in the case of A. pilipes; but the labial palpi are abnormally long in this species, and so enormously developed that they can easily touch the stamens or pistil inside the corolla tube, whilst the honey is being gathered. I have a specimen of this bee which has died with the tongue extended, and on measuring the labial appendages with the corolla tube of a Primrose to-day, I found that the palpi would exactly touch the stamens of the pin-eyed form of Primrose, and would actually have to push through them to enable the bee to reach the honey contained in the nectaries beyond. In the case of the long-styled form; the pollen would, of course, be conveyed by the head of the bee, which would have previously been in contact with the stamens at the mouth of the tube in the short-styled form. I may say that last year I visited the garden of a working-man, some quarter of an acre in extent, which was almost entirely given up to the culture of seedling forms of the alpine Auricula. In this garden Anthophora pilipes abounded, and it would be difficult to believe that every flower in that garden was not cross-fertilised by the bees, which were so quick in their movements, that each bee must have visited twenty or thirty blooms a minute. In conclusion, I fail to see why Nature's arrangements to ensure cross-fertilisation amongst flowers should be the unnatural thing your correspondent suggests. Everyone knows that too close a union amongst stocks tends to ultimate weakness; and it is a well established fact that many flowers mature their stamens and pistils at different periods, in order to guard against self-fertilisation. Without going so far as to say that Primroses are never self-fertilised, I yet think that it is more than probable that many are cross-fertilised through insect agency. At any rate, I think it would be well to gain a little more knowledge on the point before attempting to refute the conclusions of so great a naturalist as Charles Darwin. *E. M. A., Worksop.*

—— On page 226 of your issue of April 11, occurs the following statement: "From the middle of March to the second week in May, night-flying moths are infinitely scarce."—Where? The writer of the Primrose article should go to Nature and visit the woods; he would then find cause to alter his views. The Sallows are over in most places this year, but another time if he would take a walk in March, say from the 14th to the 31st, and note a good well-furnished Sallow bush in a wood or on the outskirts of one, and then some mild night visit the place and keep perfectly still, he will see great numbers of moths visit the bloom of many species, some hibernating kinds as well as plenty fresh out; this is well known to collectors if not to field naturalists, in fact the genus Tæniocampa is the commonest during March and April, and the species are pre-eminently night-flyers; and T. stabilis, T. instabilis, and T. cruda are amongst the commonest and widely distributed Noctuas in the British Islands. When the Sallows are over, along with Illunaria ferrugata, they visit other blooms, including Primroses. The day-flying Bombilius medius is a fly which seems to prefer Primroses to anything else, and may be obtained any sunshiny day in spring by visiting the woods, occurring very commonly in Kent and Hereford. I have not met with it in Hertford, but have not tried the woods, and have never seen the thing in any garden anywhere. Whether it has any special effect on the fertilisation I cannot say, but Primroses in my garden were shy seeders, although seed was to be had in plenty 1½ mile away, where the fly was plentiful. As for day fliers, the Bombiliformis and fuciformis visit the Primrose in woods, as do the green-veined, white, and some others; but my object in writing was to call attention to the palpable mis-statement quoted from p. 226. In conclusion I may say, that night-flying moths are common in most seasons, from the middle of March to the end of October. *Observer.*

CARDAMINE PINNATA.—This plant, better known as Dentaria pinnata, is the best of the subspecies Dentaria, and is very ornamental in my garden, in shady and sheltered borders, all April. It grows 15 inches high, having a spreading habit, with many upright stems rising sufficiently apart from one another, each bearing a broad bunch of pure white flowers. It is one of the few plants which always look healthy in this garden, where mildew and insect-pests abound, and it seems to deserve more general patronage than it gets. A less attractive and earlier species, of lower stature, with pale yellow or cream-coloured flowers, which appear in March, is C. polyphylla, each stem having only one whorl of three pinnate leaves just below the flowers, but being still true to its name in appearance. A third species, flowering also in April with C. pinnata, has flowers of dark purple; it is figured in Sweet's *British Flower Garden*, part ii., tab. 72, as Dentaria digitata (Lamarck), and described in D. C. *Prodromus*, i., p. 155, by the same name. In *Bot. Mag.*, tab. 2202, it is D. pentaphylla (Aiton); but I find that *Index Kewensis* refers both these names to Cardamine pratensis. I should be glad to get the revised name of the plant, of which I enclose a specimen. It is worth growing for its early flowering. *C. Wolley-Dod, Edge Hall, Malpas, April* 11. [Next week. En.]

LAW NOTES.

AN IMPORTANT ASSESSMENT APPEAL.

At the Norwich Quarter Sessions, on April 9, the appeal was heard of Thomas Wayman Bowers against the Assessment Committee of the Wisbech Union and the Overseers of the parish of Upwell.

Dr. Cooper said the appeal was in respect of 10 acres of the appellant's farm, which was rated at £1 per acre more than agricultural land, on the ground that fruit—namely, Raspberries—was grown thereon. He argued that a farm could not be cut up for the purposes of rating, and the Court had to decide whether they (the respondents) could rate fruit more than they could corn. Dr. Cooper said although the sum in dispute was only £2, they were appealing for the purpose of contesting a principle. It was a test case, and fifty other fruit-growers were awaiting the decision. The Raspberry-canes were tenant's fixtures, and the point was whether the Assessment Committee had any right to rate a crop of what was not ordinarily grown on agricultural land. If this were an orchard, it might be rated on different principles.

Mr. F. Payne, land agent, of Bromley, Kent, with forty years' experience, said he had never known a crop of fruit to be separately assessed; and Mr. Charles Ellworthy, estate agent, of Upwell, said in thirty years he had never known a different value put upon agricultural land because of Raspberries and Strawberries being grown upon it.

Mr. T. W. Gaze, of Diss, said he had never known an instance in which a field was separately rated from the rest of the farm. He never knew a case in which soft fruit was rated.

At the request of Dr. Cooper, the minute-book of the Assessment Committee, the valuation list, and the rate-book were produced, and it appeared from a resolution of the Assessment Committee that after the second year of planting, Raspberries should be assessed at £1 an acre more than agricultural land.

Mr. Poyser, replying on behalf of the respondents, said he did not ask the Court to say the Assessment Committee could rate tenant's crops. He was there to deal with the value of certain pieces of land, and the Bench had to say what was the right value of the land.

Mr. W. Eve (senior member of the firm of W. Eve & Sons, valuers for the Assessment Committee), said he did not form his valuation on the basis of an estimated amount for agricultural land plus £1 per acre for the fruit. He never added £1 to a supposed agricultural value. Mr. Francis Horner of Norwich said the 10 acres were worth 50s. an acre, and that 27s. 6*d.* was an absurdly low rating. Mr. J. R. Law, surveyor, of Herts, and Mr. Henry Dann, Kent, gave similar evidence respecting the rateable value of the land in question.

The Chairman said the Court allowed the appeal, and ordered the rate-book to be amended in respect of the 10 acres, substituting £15 gross and £13 17s. 6*d.* rateable [see *Gardeners' Chronicle* of April 4, 1903, p. 222].

TRADE NOTICES.

CURTIS, SANFORD & Co., LTD., TORQUAY.—It is announced that the title of this company is now altered to "The Devon Rosery and Fruit Farm, Ltd."

NURSERY COMPANY, LIMITED.—This Company has been registered with a capital of £1,000 in £1 shares. The objects of the Company are to carry on the business of nurserymen, seedsmen, florists, market and landscape gardeners, fruit-growers, farmers, horticultural builders, engineers, implement makers, &c. No initial public issue. Registered without articles of association.

THE business until lately carried on by Mr. Thos. Hunter, Harmire Nurseries, Barnard Castle, as nurseryman, &c., has been purchased by Hubert Dowding, who intends developing a forest-tree trade.

FRUIT REGISTER.

APPLE ROUND WINTER NONSUCH.

To many, this Apple is not so well known as several of the newer varieties; nevertheless, it is well deserving of notice to those about to regraft old trees. At Wrotham Park there is a large tree growing in the orchard which bears annually heavy crops when many others fail. The fruits are of fair size, and clean, with a beautiful deep crimson colour on the sunny side. If the fruits are left hanging on the trees late in the autumn, they keep sound till March. It is a cooking Apple, sweet, and pleasant in flavour. So well does this old variety succeed here, that I hope this season to place grafts on to trees of other varieties which are poor keepers.

American Mother.

Nicely grown and well ripened, the fruits of this variety are quite suitable for the dessert, in fact it is one of the best flavoured Apples I know of that ripen in October. It fruits well as a pyramid if the roots are kept near the surface, and it does well when trained as an espalier, but as a standard tree I have no experience of it.

May Queen.

This Apple at Wrotham Park does well as a pyramid, and the fruit keeps in good condition till very late in the season. It is of medium size, nicely coloured, and excellent flavour. I have had nice fruits late in April when left hanging on the tree till quite matured before being gathered. *H. Markham, Wrotham Park Gardens.*

CULTURAL MEMORANDA.

FRUIT TREES.

The grafting of fruit-trees at this season is a matter of importance, and will occupy the attention of both fruit-growers and gardeners anxious to obtain the most profitable varieties, and those that will keep sound and good for a considerable length of time. It is not uncommon to find in our orchards varieties that might well be replaced with more useful varieties. Several of the soft-flesh kinds, such as the Codlins, productive and useful as they are, are early in use, and when other fruits are about. Lord Suffield, Lord Derby, Lord Grosvenor are first-rate bearers here as pyramids and standards, but where space is limited, many of them are not required in private gardens. Trees that are healthy and not too old may be headed back and grafted, these coming into bearing quickly. Gooseberry-Apple, Winter Greening, and Wellington are excellent cooking varieties, which when carefully gathered and stored, keep till March and later; and if not very pleasing and attractive to the eye, they are not the less valuable. *H. Markham.*

Gloxinia (Ligeria).

This showy stove plant may be easily raised from seed sown thinly in well-drained pans or pots filled with finely-sifted compost of equal parts loam, leaf-mould, peat, and sand, made firm before sowing. After covering the seed very lightly, placing in heat, afforded water through a fine rose, and then covered with glass and paper till the seedlings appear, when the paper should be removed, and the glass tilted a little, so as to inure the plants to the air of the house. Prick out as soon as large enough to handle in pans or shallow boxes filled with the above-mentioned mixture; return to heat, apply water, and shade with paper for a few days till the roots have taken to the soil, when the shading should be discontinued, and the plants grown on in a position near the roof glass, putting them singly into 3-inch pots, and into 5-inch ones in due time. Seed of distinct varieties should be obtained. Named varieties should be perpetuated by inserting the base of individual leaves of same round the rims of pots filled with soil as advised above, and then placed in heat. *H. W. Ward, Rayleigh.*

NEW INVENTIONS.

CAMPBELL'S SULPHUR VAPORISER.

The executors of Robert Campbell, Water Street, Manchester, bring under our notice an apparatus for the vaporisation of sulphur. The illustrations (figs. 100, 101) will show the manner

Fig. 100.—Vaporiser.

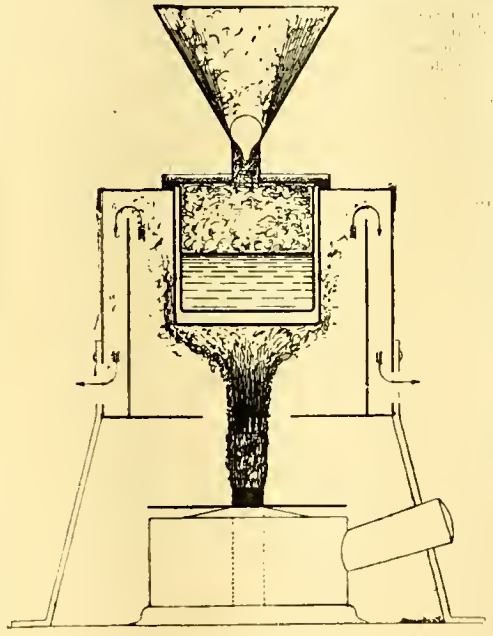


Fig. 101.—Vaporiser.

in which it is worked, and no doubt can be entertained as to its efficiency. Great care, however, is evidently necessary to prevent the sulphur taking fire, and to prevent too large a dose of sulphurous vapour being evolved. For the cure of mildew in Roses, when properly used, it has been found very effectual.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

Present: Dr. M. T. Masters, F.R.S., in the Chair; Messrs. Douglas, Bowles, Saunders, and Massee, Drs. Rendle and Cooke, Prof. Boulger, Revs. W. Wilks and G. Henslow, Hon. Sec.

Scientific Investigations.—The reply from the Council to the Resolution unanimously adopted by the Scientific Committee on March 10 was as follows:—"Whilst the Council very greatly desire to see such a department created in connection with the Society's gardens, they think it a matter which, under existing circumstances, had better be deferred for the present."

Primrose Malformed.—Mr. A. W Sutton, Woolhampton, Berks, sent a specimen in which the umbel was partly formed, but with multifold flowers of twelve parts, and with a partly petaloid calyx, &c.

Narcissus with Double Corona.—Mr. Backhouse sent a variety which is said always to produce small trumpet-like appendages outside the orange corona—a malformation not previously observed.

Proposed Legislation for the Protection of Fruit Trees.—Dr. Masters read the Report of the sub-committee appointed at the last meeting, which included the following suggestions:—(1) That the matter should be referred to the Fruit Committee as cultivators; (2) The Herefordshire County Council (with whom the movement initiated) had failed to make out a sufficient case for legislation; (3) Forethought, vigilance, and good cultivation would be more effectual than an Act of Parliament; (4) There should be concerted action among growers in checking diseases, &c., e.g., the Gooseberry-sawfly, which might be done if every cultivator in any district would dust or spray his bushes when attacked, and in the winter would remove a few inches of soil and burn or bury it deeply; (5) The Board of Agriculture has power to take immediate action in special cases; (6) Self-interest on the part of the nurseryman would be more effective than occasional visits of an inspector; (7) The proposal to appoint a Government entomologist and mycologist is already to some extent acted upon by the Board of Agriculture—this should be more widely known; (8) It may be suggested that the Board of Agriculture might co-operate with the Society in establishing a permanent scientific research and experimental station in its garden, to deal with plant diseases, &c.

Peas attacked by Beetles.—Samples were received from Mr. Gregory, of Croydon, upon which Mr. Saunders reports:—"The Peas from India are attacked by Bruchus pisi, generally held to be introduced from abroad, but it is so common now that it is difficult to be quite certain on this point. Peas badly attacked should be destroyed at once, as they are of little or no use, and only a source of infection."

Rose shoot with Grub.—A shoot of a Rose was received through Mr. F. J. Faber, attacked by a borer, upon which Mr. Saunders reports:—"The grub is that of the sawfly (Pœcilosoma candidatum). Many of these insects have more than one brood during the year. The infected shoot should be cut off and burnt, or the flies should be caught when flying about the bushes."

Manure with Grubs.—Samples received from Dr. Parsons, Croydon, were submitted to Mr. Saunders, who reports as follows:—"The grubs are of a fly of the genus Bibio, to which the common St. Mark's fly (B. Marci) belongs. These grubs are very injurious when they attack the roots of plants. They are generally found in decaying vegetable matter or manure. They will soon turn to chrysalids, and the flies will appear in about a month. They can easily be caught in a net."

DUTCH HORTICULTURAL AND BOTANICAL.

March 25.—On the occasion of the meeting on the above date, the committee awarded First-class Certificates to Tulipa Kaufmanniana coccinea, as a new plant, and to T. K. aurea, as a plant not sufficiently known, shown by M. P. W. Voet, at Overveen, near Haarlem; to Lælia Jongheana, as a fine variety, shown by M. W. C. Baron van Boetzelaer, at Maartensdijk; and to Cypripedium × Madame Hacke, shown by M. H. C. Hacke, at Baarn. Certificates of Merit were given to Muscari Szowitzianum sub-cœruleum, Chionodoxa Lucilliæ grandiflora alba, and Iris warleyensis, from Messrs E. H. Krelage & Son, Haarlem; to a collec-

tion of Cypripedium hybrids, from Mr. H. C. HACKE, Baarn; and to Iris Willmottiana, as a new plant, from M. P. W. VOET, Overveen, near Haarlem. Honourable Mention to Viola odorata, a variety with pink flowers, from M. P. VEEMEULEN, at Wormerveer; to Helleborus hybridus roseus superbus Otto Froebel, from M. H. D. WILLINK VAN COLLEN, at Bruckeler; to Cypripedium × Lathamianum var. H. C. Hacke, from M. H. C. HACKE, at Baarn. A Cultural Commendation to Ada aurantiaca, from M. W. C. BARON VAN BOETZELAER, at Maartensdijb; to Asparagus decumbens and Asparagus Sprengeri, as a specimen plant, from Messrs. JOHS. v. D. BERG, at Amsterdam. A Silver-gilt Medal to a collection of forced shrubs, from which the flowers are useful for floral decoration, from Messrs. D. J. FAN & SONS, at Aalsmeer. A Silver Medal to a collection of forced Irises, from M. W. VAN VEEN, at Leiden.

DEVON AND EXETER GARDENERS' ASSOCIATION.

THE final meeting of the session was held on the 1st inst., when the subject under discussion was "Can Flower Shows be made more Attractive than they are?" Mr. C. M. Collingwood, an amateur member, read an introductory paper on the subject. There was a generally expressed opinion that while country flower shows should provide for the amusement of many villagers who attended, but who had practically no interest in horticultural exhibits, larger exhibitions in important cities and towns should adhere as closely as practicable to the interests of horticulture pure and simple. There being scarcely any competition at some country shows in the large specimen plant classes, some thought they should be discarded from the schedule, while others contended that they were the making of an exhibition.

The members resolved to have their annual summer excursion early in July, the destination being Ilfracombe, Watermouth Castle, and the neighbourhood, the owner of the Castle and its beautiful grounds (C. H. Bassett, Esq) having given a cordial invitation to the members to pay a visit to it. *A. H.*

BRISTOL & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

APRIL 4.—By the invitation of C. H. Cave, Esq., about thirty members of the Bristol Gardeners' Association availed themselves on the above date of the opportunity to visit the gardens at Rodway Hill House, and inspect the valuable collection of Narcissus and Daffodils raised by Mr. Cave.

Mr. Cave's collection is undoubtedly one of the finest in the kingdom; many of his seedlings, as yet unnamed, and not yet in the commercial market, are beautiful in the extreme, and would do good to the hearts of any of our Narcissus experts. Foremost amongst the new types was noticed a grand N. poeticus, with orange cup, of a good size, colour, and substance; also a beautiful one of the Incomparabilis section, with bold flower of a beautiful yellow. His "Red Caps" are exceptionally fine, and promise well for a brilliant future.

READING & DISTRICT GARDENERS'.

APRIL 6.—The meeting held on the above date was set apart for the visit of a representative of the Bristol Gardeners' Association, the two Societies having at the commencement of the year agreed upon a mutual interchange of lectures. This departure has met with great success, both at Bristol and Reading.

Mr. J. T. Curtis, of Down House Gardens, Stoke Bishop, was the first Bristol representative, and he read before the members of the Reading Association, who assembled in good numbers in the Abbey Hall, a paper on "Some Useful Stove Plants."

THE HORTICULTURAL CLUB.

APRIL 7.—Mr. F. W. Burbidge, M.A., V.M.H., was the guest of the Club on the occasion of the monthly dinner held at the Windsor Hotel on the above date, under the presidency of Mr. Harry J. Veitch.

Mr. Burbidge gave a most interesting paper on "Horticultural Progress," a subject upon which his long and varied experience fits him peculiarly well to dilate. In his opinion the immense progress which has undoubtedly been made relates far more to the extension of horticulture to a wider circle than to elevation of type in the fruits, vegetables, and flowers themselves, a point which might be open to dispute.

In the evolution of horticulture, progress proceeds by no means in straight lines, man himself being the main directing factor, the question of fickle fashion and taste and peculiar hobbies come in very often as a disturbing and revolutionising element, so that it is by no means an easy matter to compare calmly and judicially one period with another, especially since the judges themselves are not exempt from bias. Looking backwards, we have seen the era of carpet bedding yield to subtropical gardening as a method of summer decoration, and this in turn has given way to the culture of herbaceous perennials to a very large extent. Those who at one time devoted their energies to the acquisition of would-be complete collections of varieties of one class or another, found themselves forced by abundance of material, and the large proportion of inferior material, to replace these by selections of the best—a step undoubtedly in the right direction. In the commercial direction the benefit of specialisation in culture has become more fully recognised, and many nurserymen now grow a comparatively few things, but by the concentration of their knowledge and efforts upon these attain finer results and larger crops than was possible in the era of generalisation. In this connection, it was pointed out with some cogency that many well-to-do amateurs who complain of the relative inferiority of their gardeners' produce, as compared with that on the market, would do well to bear in mind the handicapping which is involved in the varied character of the plants they desire these gardeners to grow. The facilities existing in the present day for retarding or hastening the flowering process by means of refrigeration or etherisation, and electric light, were also alluded to, though these reversals of the seasons were hardly regarded as an unmixed benefit. Facilities of carriage and travel were also cited as potent factors in progress, not only by enabling plants to be imported and exported, but permitting the growers to see for themselves, not only the floral gems of their immediate neighbours, but also those of foreign competitors. In another and practical direction, Mr. Burbidge warned the young gardener from the too common aspiration to be "under glass," since the fundamental principles of his business are best learnt in the open; and a good all-round man rarely results from an apprenticeship entirely spent in "pottering about" in the greenhouse. The lack of a spirit of business-like co operation among the gardening fraternity was lamented; and the establishment of a Gardeners' Guild was strongly advocated. Finally, some very strong remarks were evoked by Mr. Burbidge's allusions to Sir James Rankin's Bill now before Parliament, relating to the eradication of diseases in nursery gardens, which was felt to be aimed altogether in the wrong direction, since while the nurseryman for his own sake does his utmost to eradicate disease from his stock, he is constantly handicapped by careless amateurs in his vicinity, who allow their trees to become the prey of vermin without any check at all, and thus maintain constant centres of infection.

ROYAL BOTANICAL AND HORTICULTURAL OF MANCHESTER.

APRIL 7, 8.—This old established Society held its spring flower show in conjunction with the Manchester and North of England Orchid Society on the above dates, with results that were excellent.

MISCELLANEOUS.

Messrs. REAMSBOTTOM & Co., Glashill, King's Co., staged a beautiful collection of St. Brigid Anemones, which were the admiration of all who saw them. The colours ranged from pure white to the richest crimsons, and the whole formed a novel and interesting feature of the show. A Gold Medal was awarded.

Daffodils were largely shown by Messrs. DICKSON, BROWN & TAIT, Manchester; and by DICKSON & ROBINSON of Manchester, whose collection was well shown off by a number of plants of the Crimson Rambler Rose. Messrs. HOGG & ROBERTSON, of Dublin, also had a fine display of Daffodils and Tulips. Silver-gilt Medals were awarded to each of the foregoing firms; also a Silver Medal to B. S. WILLIAMS & SON, Upper Holloway.

JOSEPH BROOME, Esq., Llandudno, sent a collection of beautiful cut blooms of herbaceous perennials from his garden at Sunny Hill, choice Saxifragas, Vincas, Cheiranthus, &c.

The Misses HOPKINS, Knutsford, had a choice collection of Primulas and Auriculas, to which an Award of Merit was given.

ORCHIDS.

There was a grand display. ELIJAH ASHWORTH, Esq., Wilmslow (gr., Mr. Holbrook), staged a fine group containing many very choice plants, the predominating genus being Dendrobiums, of which there were at the least 200 plants. A Gold Medal was awarded.

J. CYPHER & SONS, Cheltenham, also had a fine group of plants, and were awarded a Gold Medal. It contained many good forms of Cattleya Schroderæ, Odontoglossum crispum, and Dendrobiums in variety.

Messrs. CHARLESWORTH & Co., Bradford, received a Silver-gilt Medal for a choice collection of plants, comprising several hybrids, among them some grand Phaius hybrids.

THE STONE ORCHID COMPANY staged a well-grown and effective group of Odontoglossums, a fine form of O. × Adrianæ being the choice bit of the group (Gold Medal).

S. GRATRIX, Esq., Whalley Range (gr., Mr. Cypher), sent a small and choice group of plants, a few well-grown Lycastes, a noble form of L. Skinneri alba, well flowered, and a few good Odontoglossums (Silver-gilt Medal).

J. LEEMANN, Esq., Heaton Mersey (gr., Mr. Edge), was awarded a Silver-gilt Medal for a group of Dendrobium × Venus, magnificently flowered.

O. O. WHIGLEY, Esq., Bury (gr., Mr. Rogers), was awarded a Silver Medal for a group principally consisting of Dendrobiums and Cypripediums.

Mr. W. HOLMES, Timperley, gained a Silver Medal for a small but choice collection of Dendrobiums.

JOHN COWAN & Co., Gatesacre, was awarded a Gold Medal for a fine mixed collection of plants.

Messrs. Low & Co., Enfield, received a Bronze Medal for a small group, one or two choice things being therein.

Messrs. S. ALLEN, Sale; Mr. J. ROBSON, Altrincham; and Mr. W. B. UPJOHN, Worsley, also received Bronze Medals for groups shown by them.

FIRST-CLASS CERTIFICATES.

Cattleya Trianæ var. Rajah, H. Low & Co.; Lælio-Cattleya × luminosa var. nigrescens, J. LEEMANN, Esq.; Odontoglossum × Adrianæ var. Babette, W. THOMPSON, Esq.; Dendrobium Gratrixæ (parentage unknown), S. GRATRIX, Esq.; Cattleya Schilleriana, Gatesacre var., J. COWAN & Co., LTD.

AWARDS OF MERIT.

Cattleya Trianæ var. aurantiaca, H. Low & Co.; Lælio-Cattleya × cinnabarina × C. Mendeli, J. LEEMANN, Esq.; Lælio-Cattleya × Mercia, CHARLESWORTH & Co.; Cattleya Schroderæ var. Minerva, CHARLESWORTH & Co.; Cattleya Mendeli var. aurea, Mr. J. ROBSON; Odontoglossum crispum var. Captivation, Mrs. S. GRATRIX.

CULTURAL CERTIFICATE.

Dendrobium nobile var. Cooksoni, W. J. CROSSLEY, Esq.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period April 5 to April 11, 1903. Height above sea-level 24 feet.

1903. April 5 to April 11.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 5	N.W.	45·9	40·1	57·6	38·5	...	47·0	47·3	47·3	30·0
MON. 6	W.S.W.	47·7	44·1	55·6	33·2	...	47·0	47·3	47·3	28·0
TUES. 7	W.S.W.	50·4	46·5	54·1	47·9	...	49·2	47·5	47·3	44·0
WED. 8	N.N.E.	45·2	39·9	54·9	39·2	...	47·2	47·8	47·4	30·9
THU. 9	N.N.E.	45·1	40·7	49·3	40·4	...	47·2	47·7	47·4	30·2
FRI. 10	S.W.	45·2	42·2	53·6	33·2	...	46·1	47·4	47·5	23·1
SAT. 11	S.W.	51·5	47·2	51·9	45·2	0·03	47·4	47·4	47·6	40·8
MEANS	...	47·3	43·0	53·9	40·4	Tot 0·03	47·3	47·5	47·4	33·4

Remarks.—A week almost without rain, and dull, with cold, drying winds.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending April 11, is furnished from the Meteorological Office:—

"The *weather* during this period was finer and drier over the kingdom generally than for some weeks past. A good deal of rain was, however, again experienced in the north of Scotland.

"The *temperature* was above the mean in all districts, the excess amounting, as a rule, to only 1° or 2°, but to 3° in Scotland, E. and England, N.E. The highest of the maxima, which were registered on rather irregular dates, ranged from 61° in Scotland, E., England, N.E., and Ireland, S., to 57° in England, N.W., and to 58° in Scotland, N. The lowest of the minima were recorded during the earlier days of the period at most northern and north-western stations, and on Friday in the south; they ranged from 29° in Scotland, E. and England, E., to 33° in the Midland Counties and England, N.W., and to 37° in Ireland, N. and the Channel Islands.

"The *rainfall* was much less than the mean in most districts, that over the south-western, southern, and eastern parts of England being especially slight. In Scotland, N., the fall was more than twice as much as the normal.

"The *bright sunshine* was deficient in most localities, but just equal to the mean in England, S.W., and in excess in England, N.E. and the Channel Islands. The percentage of the possible duration ranged from 60 in the last-named district, to 38 in England, S. and S.W., to 27 in the Midland Counties, and to 22 in Ireland, N. and Scotland, N."

THE WEATHER IN WEST HERTS.

Still another warm week, and the eleventh in succession; the last week, however, proved the least unseasonably warm of the series. On the warmest day the temperature in the thermometer-screen never exceeded 54°, and on the one cold night the exposed thermometer registered 6° of frost. Owing to the scanty record of sunshine, the ground, both at 1 and 2 feet deep, is at the present time only slightly warmer than is seasonable. Rain fell on three days, but to the aggregate depth of little more than a quarter of an inch. Some rain-water has come through both the percolation gauges during the week, but in gradually diminishing quantities. On the one bright day the sun shone for seven and a-half hours, but during the remaining six days, on an average for less than an hour a day. The winds were again westerly, and generally of more than average strength. The most noteworthy feature of the week was the large amount of moisture in the air for a spring month. *E. M.*, *Berkhamsted*, *April* 7, 1903.

The remarkable spell of warm weather which commenced on January 19 came to an end on the 11th inst., having lasted nearly twelve weeks. During the warm period in question there were only nine unseasonably cold days, and but ten unseasonably cold nights. On two nights in the middle of February the exposed thermometer registered respectively 13° and 16° of frost; but with these exceptions there occurred at no time more than 10° of frost. Since the 11th, the temperature of the air has fallen considerably, and on two nights the thermometer on the lawn showed 7° and 8° of frost. The ground at 2 feet deep is as yet only slightly affected by the change of weather; but at 1 foot deep it is already 4° colder than is seasonable. On several days there were short but sharp showers of rain, soft hail, sleet, or snow. Percolation through both the soil gauges has now nearly ceased; in fact, no measurable quantity of rain-water has come through either of them for nearly a week. On three days the sun shone for less than an hour, but the remaining four days were unusually bright, their average record amounting to 8½ hours a day. The winds have been again very variable in strength; they were, however, as a rule, high, and principally westerly. The absence of the usual east winds at this season has been rather remarkable. Since the spring began, six weeks ago, the direction of the wind has for only fifty-three hours altogether been any point of the compass between north and east. The amount of moisture in the air was, as a rule, about seasonable. *E. M.*, *Berkhamsted*, *April* 14, 1903.

Publications Received.—*The Naturalists' Library Guide.* A new quarterly magazine, "containing complete lists, notes, announcements, and reviews of new books and other publications appertaining to natural history, country life, and kindred subjects. Edited by W. Percival Westell. (Published, at 6*d.* a number, by Barnicott & Pearce, Fore Street, Taunton.)—*Bulletin of the Department of Agriculture, Jamaica*, February. This contains an important paper, by Professor F. S. Earle, on "Health and Disease in Plants."—*Annali della Regia Scuola Superiore di Agricoltura di Portici.* Serie secunda, vol. iv. We find in this book various practical articles by competent authorities, and may mention the introductory paper on "Fruit Cultivation in Italy," by Dr. Luigi Savastano; and a "Contribution to the Flora of Calabria," by Dr. G. Mottareale, in which botanists of every nationality will be interested.—We have on our table, from the Technical Instruction Committee of the Oxfordshire County Council, *Reports, for the year* 1902, *of the Trial Allotments at Clifton, Hampden, Dorchester, Bicester, Crowmarsh Gifford, Witney, Chipping Norton, and Goring*, respectively.—From the Department of Agriculture for the West Indies: *Report on the Experiment Stations, Montserat*, 1901-2. On the whole the report is distinctly favourable in character, and indicates that Mr. Jordan is putting forth his best efforts for the benefit of the Institution.—*Report on the Botanic Station, Agricultural School and Experiment Station, and Cacao and other Experiment Plots, Saint Lucia*, 1901-2.—*West Indian Bulletin*, Vol. III., No. 4, with papers on Scale Insects of the West Indies, and on Crude Oil and Soap, a new general insecticide, by H. Maxwell-Lefroy; Green Sorghum Poisoning, West Indian Fodders, and Agricultural Efforts at Dominica. *Bulletin of Miscellaneous Information, Botanical Department, Trinidad*, October contents: Lianes, Pitcher Plant as a Plant-protector, Attalea Flowers, Mangos in Nigeria, &c. The January issue of the same bulletin contains notes on Vanilla, Passiflora laurifolia, Care of Pastures, Packing and Sale of Fruits, &c.—*The Agricultural Journal of the Cape of Good Hope*, March. During February the persistent drought caused much damage throughout South Africa. Agriculture is reviving at all stations, and attention is being directed to the subject of rust-resisting Oats.

MARKETS.

COVENT GARDEN, *April* 16.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Cut Flowers, &c.—Average Wholesale Prices.

	s.d.	s.d.
Azaleas, per doz. bunches	2 0	4 0
— mollis, per bunch	1 0	—
Bouvardias, per dozen bunches	6 0	8 0
Callas, per dozen	4 0	6 0
Camellias, per dozen	2 0	3 0
Carnations, per bunch	1 0	3 0
Daffodils, p. doz. bunches	1 0	4 0
Eucharis	2 0	3 0
Ferns, Asparagus, per bunch	1 0	2 6
— French, per doz. bunches	0 4	0 6
— Maidenhair, doz. bunches	4 0	6 0
Gardenias, per box	1 6	3 0
Gypsophila, per bunch	0 6	—
Hyacinths, doz. bunches	2 0	6 0
Iris, per bunch	1 0	—
Lilac, White	2 0	4 0
— auratum, per bunch	3 0	4 0
— longiflorum, per bunch	4 0	7 0
Lily of the Valley, p. doz. bunches	4 0	9 0
Marguerites, yellow, per dozen bunches	2 0	2 6
Mignonette, per dozen	2 0	3 0
Narcissus, dozen bunches	1 0	3 0
Orchids: Cattleya, dozen blooms	12 0	15 0
— Dendrobiums, per dozen	2 0	3 0
— Odontoglossums, dozen	2 0	4 0
Pelargoniums, zonal, dozen bunches	4 0	6 0
— White	3 0	6 0
Primroses, dozen bunches	0 6	1 0
Roses, Mermet	3 0	6 0
— various, per bunch	1 0	4 0
— red, p. bunch	2 0	3 0
— white, bunch	1 0	2 0
— pink, bunch	2 0	5 0
Smilax, per dozen trails	1 6	2 6
Stocks, per dozen bunches	2 0	4 0
Tulips, all colours, per bunch	0 6	1 0
Violets, Parma, per bunch	1 6	2 0
Wallflowers, per dozen bunches	3 0	3 6

Plants in Pots, &c.—Average Wholesale Prices.

	s.d.	s.d.
Adiantums, doz.	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæs, doz.	9 0	18 0
Aspidistras, doz.	18 0	36 0
Aucubas, per doz.	4 0	8 0
Azaleas, each	2 0	4 0
Begonia Gloire de Lorraine	6 0	12 0
Callas, per dozen	4 0	8 0
Cinerarias, p. dz.	4 0	8 0
Crotons, per doz.	12 0	24 0
Cyclamens, p. doz.	6 0	18 0
Cytisus, per dozen	6 0	9 0
Daffodils, p. doz.	4 0	6 0
Deutzia	8 0	12 0
Dracænas, variety, dozen	12 0	48 0
Ericas, per dozen	8 0	18 0
Euonymus, vars., per dozen	4 0	6 0
Ferns in variety, per dozen	4 0	30 0
— Japanese Balls, each	1 6	—
Ficus elastica, doz.	9 0	24 0
Hyacinths, p. doz.	6 0	10 0
Hydrangeas, doz.	6 0	12 0
Herbaceous and Perennial Plants in variety, box	1 0	2 0
Ivy Geraniums, per dozen	6 0	8 0
Lilium longiflorum, per doz	12 0	21 0
Lilac, pots, each	2 0	3 6
Lily of the Valley, pots	8 0	10 0
Lycopodiums, dz.	4 0	5 0
Marguerites, doz.	8 0	12 0
Mignonette, doz.	6 0	8 0
Orange-trees, each	3 0	7 6
Palms, var., each	3 0	20 0
Pelargoniums, Scarlet	4 0	8 0
Pteris tremula, p. dozen	4 0	8 0
— Wimsetti, doz.	4 0	8 0
Rose Trees, p. dz.	9 0	18 0
Solanums, p. doz.	6 0	8 0
Spiræas, per doz.	4 0	8 0
Tulips, red, p. box	1 0	2 0
— white, p. box	1 0	2 0
— yellow, p. box	1 0	2 0
— all colours	1 0	2 0

Vegetables.—Average Wholesale Prices.

	s.d.	s.d.
Artichokes, Globe, per dozen	1 6	2 0
— Jerusalem, p. sieve	0 9	1 0
Asparagus, sprue, per bundle	0 8	—
— Paris	1 3	5 0
— English, per bundle	3 6	—
Beans, dwarf, lb.	0 10	—
— broad, per flat	3 0	—
— Channel Is. lb.	0 10	—
— Madeira, bkt.	2 0	—
Beetroots, bushel	1 0	1 3
Cabbages, per bag	1 0	1 6
— per tally	3 6	5 0
Carrots, doz. bun.	1 6	2 0
— bag (washed)	1 6	2 6
Cauliflowers, per dozen	1 6	2 6
Celery, per dozen bundles	6 0	8 0
Chicory, per lb.	0 3	—
Cress, per dozen punnets	1 3	—
Cucumbers, doz.	2 6	4 6
Endive, per doz.	1 3	1 6
Garlic, per lb.	0 3	—
Horseradish, foreign, p. bunch	1 3	1 6
Leeks, per dozen bunches	0 9	1 0
Lettuces, Cabbage, per dozen	1 0	1 3
Lettuce, Cos, doz.	3 0	4 0
Mint, dozen bun.	2 0	4 0
Mushrooms, house, per lb.	0 10	1 0
Onions, per bag	6 6	7 0
— foreign, case	7 0	7 6
— picklers, per sieve	2 6	3 0
Parsley, per doz. bunches	1 0	1 6
— sieve	0 9	1 0
Parsnips, per bag	1 0	1 6
Peas, per flat	5 0	6 0
— frame, per lb.	0 9	1 0
Potatos, per ton	70 0	115 0
— New Teneriffe, per cwt.	9 0	12 0
— New, Kidney, Frame, p. lb.	6 3½	0 4½
Radishes, per dozen bunches	0 4	1 6
Rhubarb, Yorks.	0 9	—
— outdoor	1 6	2 0
Salad, small, punnets, per doz.	1 3	—
Seakale, natural, doz. punnets	8 0	10 0
Shallots, per doz.	0 2	—
Spinach, per bushel	2 0	2 6
Tomatos, Canary, decps	2 0	4 6
— English, new, per lb.	1 6	—
Turnips, p. dozen bags	1 6	2 0
— new, bunch	1 0	2 0
Vegetable-Marrows, per dozen	0 8	0 9
Watercress, per dozen bunches	15 0	18 0

Fruit.—Average Wholesale Prices.

	s.d.	s.d.
Apples, Californian, cases	10 0	11 0
— American, per barrel	12 0	15 0
— Australian, including Tasmanian, case	10 0	16 0
Bananas, bunch	7 0	11 0
— loose, dozen	1 0	1 6
Cobnuts, per lb.	0 3	0 3½
Figs, per dozen	4 0	12 0
Grapes, Belgian, per lb.	2 0	3 0
Grapes, Hamburgh, per lb.	3 6	5 0
— Almeria, per dozen lb.	4 0	6 0
Lemons, per case	9 0	12 0
Lychees, packet	1 0	—
Melons, each	3 6	5 0
Oranges, case	12 0	16 0
— Tangierines	5 0	6 0
Pines, each	2 6	4 6
Strawberries, A., per lb.	3 0	5 0
— B., per lb.	1 6	2 6

Remarks.—Foreign Asparagus in variety, the size of bundles varying considerably, the Giant Argenteuil fetches 8*s.* per bundle for the finest; forced Vegetable-Marrows are now coming in; Grape-Fruits, per dozen, fetch 3*s.* to 4*s*; Mangoes per dozen, 6*s*; Gros Colmar and Alicante Grapes are now over; Cape Grapes, per case, sell for 6*s.* to 9*s.*; the Pears and Plums from that quarter are over; some Californian Easter Beurré Pears sell for 14*s* per case of 48; Tasmanian and Victorian Apples are in great variety.

Potatos.

Various samples, 70*s.* to 95*s.* per ton; Dunbars, red soil, 105*s.* to 115*s.* Seed Potatos in variety, prices on application. *John Eath*, 32 & 34, *Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

Glasgow, *April* 15.—The following are the averages of the prices during the past week:—Apples, American Baldwins, 14*s.* to 18*s.* per barrel; do., Ben Davis, 15*s.* to 17*s.* do.; do., Greenings, 14*s.* to 18*s.* do.; do., Canadian Baldwins, 14*s.* to 20*s.* do.; do., Greenings, 15*s.* to 20*s.* do.; do., Spies, 20*s.* to 28*s.* do.; do., various, 12*s.* to 20*s.* do.; Californian Newtown Pippins, 12*s.* to 14*s.* per case; Oranges, Valencias, ordinary, 420's, 8*s.* to 9*s.* 6*d.* per box; large 420's, 10*s.* to 12*s.* 6*d.* do.; extra large 420's, 12*s.* to 15*s.* do.; 714's, 10*s.* to 13*s.* do.; Lemons, 4*s.* to 5*s.* per box, and 7*s.* to 12*s.* per case; Grapes, English, 2*s* to 4*s.* 6*d.* do.; do., Almeria, 12*s.* to 20*s.* per barrel; Onions, Valencia, 6*s.* 6*d.* to 8*s.* 6*d.* per cwt.; Mushrooms, 1*s.* 2*d.* per lb.

Liverpool, *April* 15.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Main Crop, 4*s.* 3*d.* to 4*s.* 9*d.*; Up-to-Date, 3*s.* 6*d.* to 4*s.*; Bruce, 3*s.* 9*d.* to 4*s.* 4*d.*; Turnips, 6*d.* to 8*d.* per dozen bunches; Swedes, 1*s.* 2*d.* to 1*s.* 3*d.* per cwt.; Carrots, 2*s.* to 2*s.* 6*d.* do.; Onions, foreign, 4*s.* 6*d.* to 5*s.* 6*d.* do.; Parsley, 4*d.* to 6*d.* per dozen bunches; Cucumbers, 2*s.* to 3*s.* 6*d.* per dozen; Cauliflowers, 2*s.* 6*d.* to 3*s.* per dozen; Cabbages, 4*d.* to 10*d.* per dozen. *St. John's.*—Potatos, 10*d.* to 1*s.* per peck; Asparagus, 2*s.* 6*d.* to 4*s.* per 100; Cucumbers, 6*d.* to 1*s.* each; Grapes, English, 2*s.* 6*d.* to 3*s.* 6*d.* per lb.; do., foreign, 8*d.* to 10*d.* do.; Pines, foreign, 3*s.* 6*d.* to 6*s.* each; Filberts, 8*d.* per lb.; Mushrooms, 1*s.* 6*d.* do. *Birkenhead:* Potatos, 10*d.* to 1*s.* per peck; do., new, 2*d.* to 6*d.* per lb.; Asparagus, 3*s.* to 5*s.* per 100; Cucumbers, 3*d.* to 6*d.* each; Grapes, English, 2*s.* 6*d.* to 3*s.* 6*d.* per lb.; Mushrooms, 1*s.* 2*d.* to 1*s.* 6*d.* do.; Filberts, 8*d.* do.

SEEDS.

London, *April* 15.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report a thin attendance of buyers on to-day's market. Notwithstanding the unfavourable weather, there is a decided increase in the number of sowing orders coming to hand. As regards the leading article of Red Clover seed, great firmness is shown; stocks of same are in exceedingly small compass, and are being further reduced by continued exports to the Continent. Alsike and White remain steady, but Trefoil favours buyers. Business in Rye-grasses continues disappointing, whilst Tares are likewise slow; Sainfoin is, however, in brisk request. Some new Scarlet Runners are now offering cheap. Peas and Haricots show no variation. A feature of the Canary seed market is that values in Liverpool are well above those ruling in London.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending April 11, 1903, and for the corresponding period of 1902, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1902.		1903.		Difference.	
	s.	d.	s.	d.	s.	d.
Wheat	27	5	25	4	— 2	1
Barley	26	7	21	10	— 4	9
Oats	21	0	17	2	— 3	10

Answers to Correspondents

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

ANTS: *R. A.* Place carbolic acid about the houses, and in the entrances to their nests, which will have the effect of driving them away. The ammoniacal water from gasworks would have the same effect.

ARUM FLOWER: *J. D.* The condition is irregular, but not uncommon. See notes in this column in several recent issues.

BALSAMS, CINERARIAS, &C., NOT THRIVING: *H. B. W.* You would succeed with these plants if you potted them in a less light compost, affording at the least one-half of the whole of turfy loam, and making use of leaf-mould in a thoroughly decayed state, sifting out of it every undecayed particle, the source of the fungus found in that which you sent for our inspection.

BOOKS: *Roses under Glass.* You should obtain *Cultivated Roses*, by T. W. Sanders, published by Messrs. W. H. and L. Collingridge, 148 and 149, Aldersgate Street, London, E.C. Price small.

BRUGMANSIA KNIGHTI: *W. M.* You will obtain the plant of any of the larger nurserymen.

CACTUS: *W. E. L.* Kindly send a bloom and piece of stem, if you can spare it.

FIG, CALLA, AND MELON LEAVES DISEASED: *A. R. S.* The Melon is attacked by some fungus. The Fig is attacked by the Fig-fungus, Cercospora Bolleana, described and figured in the *Gardeners' Chronicle*, July 7, 1900, p. 5. The Calla leaves have been sent to an expert.

FIGS FALLING: *Jap.* Without knowing all the circumstances of the case, we can only infer that dryness at the root is the cause of the mishap.

GOOSEBERRY-BRANCH DEAD: *Mayford.* The branch has died owing, probably, to some boring caterpillar, as that of the Wood Leopard Moth, having penetrated the branch or stem below the point at which you removed the part sent. Examine the plant, and if a hole be found with wood pellets lying below it, thrust a piece of wire upwards into the hole and destroy the grub.

GRUBS IN GRASS: *J. M, Bath.*—The grubs are those of the Daddylonglegs, Tipula oleracea. These are very destructive to grasses, gnawing the roots and causing the death of the plants. Dig up the soil six inches deep and leave it exposed to the attention of the birds; or enclose fowls and ducks on the land, stirring it occasionally. The grubs or larvæ are now nearly full grown, and will appear in the winged state about the middle of June, and they should then be collected by children at so much per hundred.

LILIUM AURATUM TO BLOOM IN NOVEMBER: *R. G.* It could be done if you have the means of retarding the bulbs in a cold (artificial) chamber, after having potted them, say till the end of the mouth of August, or later. If they have made growth already, we doubt the efficacy of this sort of treatment.

MARKET GARDENING: *F. J. M.* Under good management, and with sufficient capital and full knowledge of cultivation, a man can usually manage to obtain a comfortable livelihood. As regards your second question, we would advise you to make enquiries about Worthing, Littlehampton, Bognor, and other south coast towns. As to Horsham, the land is clayey, and costly to work. We are unable to answer your question as regards capital.

MELON PLANTS ON TRELLIS: *M. L.* Each plant will grow to perfection three fruits of large size, or four and five if small. Stop the stems when these reach the bottom of the trellis, and take up three, four, or five shoots to the summit. Secure the fruits not far from the points at which the plants were stopped, one on each main branch. Remove afterwards all laterals, and preserve the foliage on the main branches in as healthy a state as possible till the fruits are ripe, being particularly careful to prevent infestation by red-spider, aphis, and thrips.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—D. G. Yorke.* Amelanchier vulgaris.—*J. T.* 1, Dendrobium devonianum; 2, Heuchera sanguinea; 3, Thyrsacanthus rutilans. The last two so far as we can judge from leaves only.—*Rex.* Prunus sinensis.—*E. D., Penarth.* The larger flower is Xylobium squalens, figured in *Botanical Magazine*, t. 2955, as Maxillaria squalens. The smaller is an Eria, but which species it is impossible to say from the flower sent.—*J. B., Wilts.* 1, Odontoglossum odoratum; 2, Odontoglossum × Ruckerianum, this differs from O. Andersonianum only in colour; 3, Odontoglossum luteo-purpureum.—*C. N.* 1, Dendrobium nobile Ballianum; 2, Dendrobium nobile Burfordiense.—*W. W. Gale.* Spiræa chamædrifolia var.

NAMES AND ADDRESSES OF CONTRIBUTORS OF ARTICLES: *A. B.* We cannot undertake to give these without the consent of the writers.

NARCISSUS: *W. P.* We cannot undertake to name varieties of Narcissus.

PALM-LEAF: *Weekly Subscriber.* The leaves are attacked by a fungus, described in *Gardeners' Chronicle*, October 4, 1884, p. 429. Cut away the leaves most affected, and sponge the plants with a good fungicide.

SECURING FLOWERS IN A TABLE BASKET: *X.* If the correspondent who made an enquiry in the *Gardeners' Chronicle* for April 4, will correspond with W. G. Parkin, 20, Oakdale Road, Sheffield, he will send him details relating to his patented method.

STRONG STRAWBERRY RUNNERS FOR FORMING FORCING PLANTS: *Pinkie.* The best practice for obtaining runners of varieties that are wanted for early forcing is to set out strong plants or runners in the autumn, or at about this date from pots or nurse-beds, if the former plan be not feasible; nip off all flower-trusses as they appear, and allow three or four runners to grow on each plant, layering these in pots, and stopping the runner immediately in front of the layer. The mother plants and the runners should be induced to make good growth by an occasional application of manure-water and potash at the rate of 2 oz. per square yard. The runners must be kept moist, and severed from the parent when the small 60's in which it is layered are filled with roots, but before they are pot-bound. Repot early, and do not keep the young plants starving in the small pots. A small 32 is the largest size of pot to be used, and some varieties that make only moderate growth fruit are better in 48's.

SULPHATE OF AMMONIA FOR VEGETABLES AND FLOWERS: *Fanad.* This may be applied with advantage to soils which contain much inert vegetable matter, and to such as are naturally rich in phosphates at the rate of 1½ to 2 cwt. per acre. It may also be mixed at the rate of 1½ cwt. per acre with bones, rape dust, or wood ashes, dug or ploughed-in in the spring, or used as a top dressing at the same season, alone or mixed. For pot plants we would prefer to use Peruvian or Cincha guano as a source of ammonia at the rate of 1 oz. per gallon of water, applying it after the water into which it has been stirred has got clear. Used in the clouded state it is apt after a few applications to clog the soil and render it impervious to the air. One or two applications per week at this strength will be found sufficient for most kinds of plants.

TWIN NARCISSUS: *T. J. H.* Not unusual; the union takes place at a very early stage of development.

VINE AND OTHER LEAVES: *T. E. H.* There is no fungus visible. We are inclined to think that there has been some error in cultivation.

VINES: *H. W.* The union of two shoots is not very uncommon. In your case it arises probably from excess of vigour. It will do no harm. Another time, address the Editor.—*F. W.* We cannot tell you the cause of the check. Is there anything wrong with the roots?

WEAK STRAWBERRY PLANTS: *Pinkie.* If these do not fruit in the open, they might be potted up in August in 32's, large or small, according to the size of the balls. Pot firmly in loam three-quarters and stable manure one-quarter.

WINTER AND SPRING BROCCOLI, KALES, &C.: *Pinkie.* Plant either in the open quarters away from walls, buildings, and large trees, or on the north side of a wall that shades the entire width of the border from the sun.

COMMUNICATIONS RECEIVED.—J. Uda'e—J. T.—J. C. T. J. M.—C. P.—H. W. W.—F. A W, Boston—J. R. J.—L. L., Brussels—E. A.—G. C.—E. M.—W. B. H.—W. J. H., photographs with thanks.—W. L. Moore, Texas.—H. E.—Prof. Fisher.—C S.—W. W. We cannot answer your question, we do not sell our illustrations—J. T—W. E.—W. S.—J. R. J.—J. S.—Prof Waugh, Amherst, Mass.—E. M.—J. R.—Andreas Vos, Berlin.—J. R—E. M. A.—Messrs. Vallis & Co.—F. B. V. & Co, New York, &c.—E. C.—R. Dear.—J. P. L.—T. C. F.—W. A. C.—H. A.-R M---. H. W.—J. B.—R. P. B.

MARRIAGE.—The marriage of Herrn ALWIN BERGER, Curator of Sir Thomas Hanbury's gardens at La Mortola, Ventimiglia, with Fraulein ELISE KELLER, of Heidelberg, Germany, took place at the German Consulate-General, Genoa, on Monday, April 6; Sir Thomas Hanbury and Prof. Penzig witnessed the ceremony.

CATALOGUES RECEIVED.

FOREIGN.

STATE NURSERY COMPANY, Helena, Montana—General Ca'a'ogue of Ornamental Forest and Fruit Trees and Tender and Hardy Plants.

PLANTS.

H. CANNELL & SONS, Swanley, Kent—General Catalogue of Indoor and Outdoor Plants.

GARDENING APPOINTMENTS.

Mr. J. G. PEARCE, until recently Head Gardener at Coldham Hall, Bury St. Edmunds, as Head Gardener to L. HESELTINE, Esq., The Rookery, Yoxford, Suffolk, having entered upon his duties on Thursday, March 5.

Mr. JAMES CAIRNS, Foreman at Glamis Castle Gardens, as Head Gardener to Lord WHARNCLIFFE, Wortley Hall, Sheffield.

Mr. ROBERT ISHERWOOD, for the past three years Foreman at Thoresby Park Gardens, Ollerton, as Gardener to Capt. CUTHBERT, Beaufront Castle, Hexham, Northumberland.

Mr. J. LINEGAR, for the last three years Foreman at Hollycombe Gardens, Liphook, Hants, as Head Gardener to Mrs. TRISTRAM, Chiltlee Park, Liphook, Hants.

Mr. J. HANSON, as Head Gardener to Mrs. MCCALMONT, Cheveley Park, Newmarket.

Mr. A. HESKETH, for the past three years General Foreman at Sherdley Gardens, St. Helens, Lancashire, as Gardener to R. CHOLMONDELEY, Esq., Preshaw, Bishop's Waltham, Hampshire.

Mr. E. R. BLANCHFLOWER, for the past seven years Foreman in the Gardens, Collar House, Prestbury, Macclesfield, Cheshire, as Gardener to Colonel HEAP, Knill Court, Kington, Herefordshire.

Mr. W. S. SHARP, for the last five and-a half years Head Gardener at Ness, Cheshire, and formerly of Kew, to be Head Gardener to H. N. GLADSTONE, Esq., Burton Hall, Neston, Cheshire.

Mr. J. FLEET, four years Foreman at Woodgreen Park, Cheshunt, as Gardener at Dulford House, Cullompton, Devon.

Mr. H. BUTCHER, for nine and a-half years Gardener to Alderman CHADWICK, C.C., Arksey Hall, Doncaster, as Gardener to Sir WM. COOKE, Bt., Wheatley Park, Doncaster.

View of the Upper Terrace-garden at Bowood, Wilts., the Residence of the Marquis of Lansdowne.

NEW FOLIAGE PLANTS in the INTERNATIONAL EXHIBITION at GHENT.

(See p. 245.)

PHRYNIUM MICHOLITZII: HORT. SANDER. Leaves green variegated with white, midrib crimson.

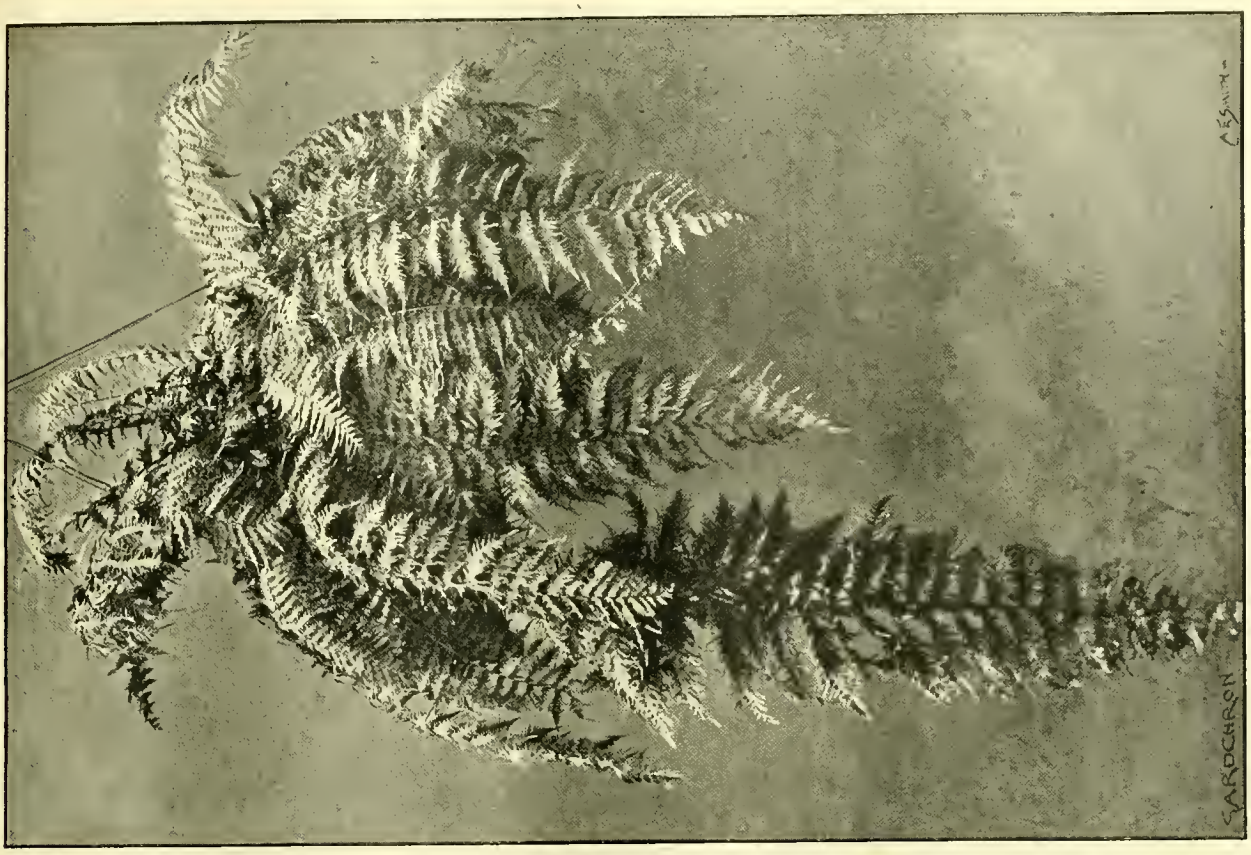
HELICONIA "EDWARDUS REX:" HORT. SANDER. Foliage rich crimson on the under surface, paler above.

Begonia Bowringiana: Hort. Sander.

Foliage velvety-crimson, blotched with white: flowers orange-coloured.

Alpinia Sanderæ: Hort. Sander.

Stove-plant: leaves dark green, with white stripes.



Polypodium Knightiæ: Hort. Sander.
Stove Fern: foliage deep green, finely divided.

Alpinia tricolor: Hort. Sander.
Stove-plant: leaves green, with yellowish-white stripes.

Dracæna Broomfieldi, var. superba.
Foliage deep green, with broad white margin.

Selaginella Watsoniana: Hort. Sander.
Foliage emerald-green, tipped with creamy-white.

Bradbury, Agnew & Co., Ld., Printers, London and Tonbridge.

THE
Gardeners' Chronicle

No. 852.—*SATURDAY, APRIL* 25, 1903.

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LILIES AND THEIR CULTURE.

THIS humid, vernal season, with its almost utter unconsciousness of the element of frost [this was written some days before the icy air of night made itself felt!] seems highly congenial to the nature of Oriental and Occidental Lilies, which are everywhere growing with abnormal rapidity. This is especially apparent in such varieties as the great Himalayan giganteum, Lilium Henryi, a native of China; and the Japanese Lilium auratum platyphyllum, of which the first-mentioned, which has a strong individuality (if I may so express it), and very few eccentricities when compared with others, requires a deep, well-drained, and richly-fertilised soil. Otherwise, as I have indicated, it is not exacting; and it has always proved, at least in my own garden, much easier of cultivation than Lilium auratum, whose character demands very similar cultural conditions, though it is considerably more sensitive to the oftentimes noxious influence of manurial stimulants. Lilium giganteum is sometimes grown from seed, which it produces in immense quantities; but this process is extremely trying to the most patient cultivator. It is therefore usually perpetuated from offsets, of which the most vigorous takes three or four years, more frequently the latter period, to reach the full dimensions of its vast flowering bulb. When adequately grown, it generally attains to a height of 10 feet, though I have heard of it growing considerably higher than this at Cavens Garden, in Kirkbean, not far from the charming residence of Mr. S. Arnott, who saw it there in its utmost majesty, 14 feet high, crowned with the glory of its ivory-white, penduleus, funnel-shaped, and intensely fragrant flowers, which have the substance of those of Magnolia Watsoni.

Lilium auratum, at least in several of its many forms, I have, like other cultivators, found more capricious. Even when grown in the soil which it demands—a deep, fertile, friable loam, it does not always reappear after the first year's luxuriant bloom. It is quite possible that when it flowers profusely before it has become perfectly established, it fails in the essential direction of perpetuation, by exhausting its vitality; this, indeed, is the only reason that can possibly be conceived of for its seeming evanescence, hence the extreme importance of early planting to ensure its success. There can be no question that, as a general rule, Lilium auratum is planted much too late. The most retiable and enduring of all the varieties of this splendid Lily is the variety platyphyllum, the giant of the noble genus to which it pertains. It gives me no difficulty, and I have the utmost faith, the result of long experience, in its endurance and vitality. It has larger flowers, but is not nearly so richly coloured as the original type. Lilium auratum rubro-vittatum is a grandly effective Lily, with deep crimson bands; here, however, though it flowers with beautiful persistence, it seems to be somewhat lacking in strength.

One of the strongest and most impressive of all Lilies is Lilium monadelphum var. Szovitzianum, which, when firmly established, may almost be regarded as a permanent possession. This Lily, which comes to us from Asia Minor, is by far the most effective of the Martagon group. It is an extremely beautiful Lily, and very florifereus.

I greatly fear that a widely different description applies to Lilium Browni and L. Krameri, which, though very graceful, are not sufficiently florally productive to be of any special value for garden cultivation. They have also this great limitation, that they do not endure, which is somewhat remarkable, seeing that they not seldom confine themselves strictly to the arduous production of one solitary flower. So far as my own experience extends, Lilium rubellum, which I think has not proved itself a great acquisition, may be included in a similar category; it is too insignificant for artistic effect. Such Lilies as these are too sparing of their flowers. Like Oliver Twist, we ask for more; and Nature replies by extinguishing them altogether, after the first season's bloom.

The danger of the longiflorums, as I have learned from observation of their attributes and limitations, is that of gradually degenerating into a multitude of very small and impotent bulbs. Of these, the most reliable for garden culture are longiflorum giganteum, so called by reason of the dimensions of its flowers; and that recent introduction of at least equal capability, longiflorum insulare.

The various members of the picturesque and highly fragrant speciosum group have this great disadvantage: that they often come too late in the season, experience crucial atmospheric visitations, and find extreme difficulty in unfolding their flowers. Only in a very exceptional season, when strong sunlight favours their early development, do we realise their grandly decorative powers. *David R. Williamson, Manse of Kirkmaiden, Wigtonshire, Scotland.*

NEW OR NOTEWORTHY PLANTS.

NEW CHINESE VIBURNUMS.

In the *Index Floræ Sinensis* twenty-seven species of Viburnum are enumerated as natives of China; since the publication of that work, Dr. P. Græbner has described (in Engler's *Jahrbücher*, xxix., pp. 584–590) ten new species collected in the central region, chiefly by Herr Bock von Rosthorn. Amongst the plants collected in Western Hupeh for Messrs. J. Veitch & Sons by Mr. E. H. Wilson are the two following, which are not referrable to any of the above-mentioned species, but which, on account of their soft foliage, paler on the under-surface, and many-flowered panicles, are welcome additions to our list of flowering shrubs. V. Veitchi,* is a shrub in which the young branches, petioles, and under surface of the leaves are densely clothed with stellate floccose tomentum; the leaves are ovate, acute at the apex, cordate at the base, with numerous scattered stellate hairs on the upper surface, and conspicuously toothed on the margin; the flowers are uniform, and arranged in terminal corymbose panicles. This species is allied to V. erosum, Thunb., but differs in having thicker leaves, which are more densely tomentose on the under surface, and cordate at the base.

V. buddleifolia† is closely allied to the last, from which it is readily distinguished by its lanceolate, acuminate leaves, which resemble those of some species of Buddleia. *C. H. W.*

Ipomœa Mahoni, *C. H. Wright.*‡

An Ipomœa raised from seeds received from Mr. John Mahon, Assistant Curator of the Botanic Station, Entebbe, Uganda Protectorate, has recently flowered at Kew. Mr. Mahon describes the plant as a large shrub, but the plants

* *Viburnum Veitchi*, C. H. Wright, sp. nov.—Fruticosus; rami juniores piliis stellatis floccosis dense vestiti. Folia ovata, acuta, basi cordata, 5 poll. longa, 3 poll. lata, argute dentata, pilis stellatis supra sparse subtus dense vestita; petiolus 8 lin. longus. Paniculæ terminales, corymbosæ; flores omnes conformes. Calyx extus dense tomentosus, dentibus triangularibus. Corolla 3 lin. diam., rotata; lobi oblongi, obtusi. China, Western Hupeh, legit E. H. Wilson, 2107.

† *Viburnum buddleifolia*, C. H. Wright, sp. nov.—Fruticosus; rami juniores ii V. Veitchi similes. Folia lanceolata, acuminata, serrata, 3½ poll. longa, 1½ poll. lata, basi cordata, supra pilis simplicibus vel furcatis vestita, subtus dense stellato-floccosa, nerviis supra impressis; petiolus 6 lin. longus, dense tomentosus. Paniculæ terminales, corymbosæ; flores omnes conformes. Calycis lobi ½ lin. longi, triangulares. Corolla 4–5 lin. diam.; lobi rotundati. Stamina exserta; filamenta glabra. China, Western Hupeh, legit E. H. Wilson, 1883.

‡ *Ipomœa Mahoni*, C. H. Wright, sp. nov.—Sect. Orthipomœa-integrifoliæ. Frutex erectus; caulis teres, primum pubescens. Folia oblonga, apice basique obtusa, integra, 1¾ poll. longa, 1 poll. lata, supra glabra, subtus pubescentia, ciliata; petiolus 9 lin. longus, pilosus, supra primum canaliculatus. Flores solitares; pedunculus brevis, crassus; bracteolæ 2, lanceolatæ 6 lin. longæ. Sepala lanceolata, acuta, inequalia, pubescentia. Corolla 3½ poll. diam., campanulato-infundibuliformis, inferne et ad costas rubro purpurea, supra alba vel pallidissime purpurea. Stamina valde inequalia. Stylus staminibus brevior; stigma didymum. Uganda Protectorate, legit J. Mahon, 83.

at Kew, which grow erect, have commenced to bear flowers when only 4 inches high. The leaves are oblong, obtuse at both ends, glabrous above, and borne on petioles about 9 lin. long. The flowers, which are over 3 inches in diameter, are deep reddish-purple in the corolla-tube, gradually getting paler on the midribs upwards; while the greater part of the limb is white or slightly suffused with pink. *C. H. W.*

discovered by Dr. A. Henry, and was described by the writer (*Journ. Linn. Soc.*, xxiii., p. 225, t. 6) under the name of Spiræa Henryi. It forms a densely-branched shrub, 6 to 7 feet high, with obovate or oblong leaves ½ to 1½ inch long, and usually toothed above the middle. The flowers are white, and borne on very slender stalks. Judging from numerous dried specimens collected in various localities in the provinces of Hupeh and Szechuen, this will prove an elegant shrub of a highly floriferous character.

The second one, which I propose naming Spiræa Veitchi,* is a closely allied species, and is also very ornamental. It differs from S. Henryi in the lateral flower-bearing branchlets being arranged distichously, that is in two rows in the same plane, in the oblong or ovate-oblong leaves being entire, and in the somewhat denser clusters of flowers. When not in flower it has a strong resemblance to some of the species of Phyllanthus. The arrangement of the branches, and the arrangement, shape, texture, colour, and general delicacy of the leaves, are very much the same as in that genus. I have no particulars of its stature before me, but take it to be a small shrub. *W. Botting Hemsley.*

Fig. 102.—Bilbergia forgetiana, Hort. Sander: new plant shown at Ghent.

(See Report of "Ghent Quinquennial," p. 266.)

Two New Spiræas from China.

Among Messrs. James Veitch & Sons' numerous introductions from China through Mr. Wilson, are two exceedingly neat, shrubby species of Spiræa, both belonging to the same group as the Indian S. canescens, and characterised by having the flowers in compound corymbs, terminating lateral branchlets. Dried specimens were exhibited, with numerous others, to illustrate Mr. G. Nicholson's lecture on "Hardy Trees and Shrubs," at the meeting on April 7 of the Royal Horticultural Society. One of them was originally

* *Spiræa* (§ *Spiraria*) *Veitchi*, Hemsley.—Species nova ex affinitate *S. canescentis*, a qua differt ramulis distichis, foliis fere glabris haud subtriplinervis et floribus minoribus. Frutex, ut videtur, paucipedalis, glabrescens, ramis ramulisque gracilibus rectis rubescentibus. Folia graciliter breviterque petiolata, tenuia, fere membranacea, oblonga, obovato-oblonga vel spatulata, cum petiolo ⅛—1½ poll. longa sed sæpius circiter pollicaria, apice rotundata, basi cuneata, margine integra utrinque primum obscure puberula, cito glabrescentia subtus glauca, venis inconspicuis. Flores, ut videtur, albi, circiter 2 lineas diametro, numerosissimi, in corymbos compositos ramulos laterales terminantes dispositi: corymbi 1½—2 poll. diametro, ramulis pedicellisque gracillimis canopuberulis. Calycis puberuli dentes minuti, acuti. Petala ovalia, rotundata, vix sesquilineam longa. Carpella (matura non visa) glabra.

Flowering Shrubs, &c., at Abbotsbury, Dorsetshire.

Beschorneria yuccoides.—Amongst many of the flowering novelties to be seen in the gardens here at the present time, the above stands out conspicuously. Its arched panicles of inflorescence, which equal in height the finest spikes of Yucca gloriosa, are now seen to the best advantage between the huge clumps of Chamærops humilis. Producing bright rosy bracts of large size, the flower-spikes at a distance are at once an attraction. The individual clusters of flowers are hidden during the earlier stages of development, and are of a greenish hue, enhanced in beauty by a complete covering of these floral leaves. B. yuccoides has proved quite hardy for many years here at Abbotsbury, and remains uncovered the winter through. The plants may, however, be cultivated in well-drained porous soil in a south aspect in other southern counties. It may be recommended for the upper parts of rockeries, a snug place being found for the plant, as for example between some large pieces of rock.

Unlike Yucca gloriosa, for which the plant is sometimes mistaken, especially when not in blossom, its recumbent habit is constant, and does not become semi-arborescent. Thus the plant can readily cover land during severe frosts in less favoured districts. Experience has shown me that Beschornerias and Agaves, if the side-shoots or suckers are removed after flowering, come into blossom much earlier, and are more floriferous than seedlings and divisions or suckers taken from a non-flowering plant.

Reverting again to Yuccas, as these are from the same arid climate, and require much the same culture, I have successfully grown these plants in quantity from divisions taken with and without roots during the latter end of May or early in June by simply preparing a light, open sandy border in full sunshine, and placing the cuttings in rows firmly in the open ground. They require but occasional watering, and it would be better to err on the dry side than the moist in the management of Beschornerias.

Camellia reticulata.

A bush of this distinct Camellia from China is perfectly healthy, and full in full blossom. Its leaves are a dull green, and the venation decidedly marked, which alone would enable the beholder to identify the species, apart from the very handsome Pæony-like blossoms, which are single, and of a delicate red tint; when fully expanded, the petals lay well back, showing a pleasing contrast with the dense mass of yellow anthers. Many of the blossoms are 4 to 5 inches across. Although perfectly at home outside among other varieties

of C. japonica, alba plena, oleifera, Mathottiana, Sasanqua, &c., the plant is better adapted for a place in a cold greenhouse, or for warm walls; its very handsome large blossoms would suffer considerably if exposed to high winds. Here, a specimen stands in a snug spot, overtopped a little distance away by large plants of Rhododendron arboreum, Ilex opaca, and Andromeda arborea. The entire collection of these and others are surrounded by Evergreen Oaks and walls.

Edwardsia microphylla.

This New Zealand tree has much to merit its being more generally known and grown in this country. It is flowering here in different parts of the garden, and produces many hundreds of racemes of golden-yellow flowers, which this year almost hide the branches from view; its leaves, although the tree may be termed persistent, are at the time of writing much thinner than after the spring growth. This sparsity of foliage, which is more noticeable this year than is generally the case, may account for the heavy crop of flowers. In addition, however, the seed-vessels of the preceding summer hang in eardrop-like fashion, sometimes singly but more frequent in threes, and even fours, like some Pea-pods; but different, in that each seed is placed in a separate cell, each end compressed and rounded in a tough jacket. In size, the seeds are like Peas, rather more oval-shaped, and germinate quite freely if sown when ripe.

Edwardsia microphylla, and also E. macrophylla, &c., are all well worth growing, the foliage alone being throughout the summer light and feathery, and a delightful green. It is one of the best wall plants, but in the more favoured localities it flowers extremely well as a tree. Its culture is not difficult; it enjoys a rich warm, and well-drained soil, so that with the heat of summer the wood may become thoroughly ripened, which applies to all flowering shrubs. *Joseph Benbow.*

FLORISTS' FLOWERS.

YELLOW AURICULA "YELLOW GEM."

I am this season growing a collection of these in pots, and they range from the Rev. T. D. Horner's high-class yellow self Buttercup, to an elementary form of the Dusty Miller. I have probably some twenty varieties, single and double, but the earliest to bloom, and in all probability the deepest yellow of all, is a variety I obtained from Brighton two years ago under the name of Yellow Gem. I could obtain no certain information as to its origin; it is of dwarf, free growth, and extremely profuse of bloom, producing a number of medium-sized trusses of large, rounded, thrum-eyed flowers, clear deep yellow in colour, and highly fragrant. The form of the flower is good; there is quite a narrow circle of white paste around the eye; the remaining surface of the flower an uniform tint of colour. It will probably be remembered that Messrs. W. Miles, nurserymen, Hove, Brighton, exhibited a basket of it at the National Auricula Society's Show in April, 1902, when it was awarded a First-class Certificate of Merit as a subject for pot-culture and bedding purposes. At the Brighton Spring Flower Show there is a class for six pots of Auriculas, and this number of Yellow Gem invariably takes the 1st prize. When grown as a pot plant under glass, its peculiar deep tint of colour and its remarkable floriferousness are seen to great advantage, and I can confidently recommend it to gardeners for decorative purposes in their plant-houses. It greatly surpasses in beauty, freedom, and colour, such varieties as Celtic King, Alexandra, and Golden Queen. There is little or no meal on the foliage, which possesses a good deal of individuality. Another excellent yellow-Auricula for pot culture bears the rather inexpressive name of Mrs. Davis. It has finely mealed erect foliage, a strong grower, the flowers pale yellow, but more nearly approaching the florists' Buttercup in quality. Celtic King has mealed foliage, but Alexandra unmealed; both have long styled flowers, which operates to rob them of that more perfect expression seen in a thrum-eyed flower. Apart from the preference shown by the florist for thrum-eyed flowers, the blooms possessing this quality are certainly more artistically correct; and it is possible to understand the grounds of objection entertained by the florist against long-styled flowers on the exhibition table. *R. Dean.*

Fig. 103.—Alsophila sanderi, new tree-fern, shown at Ghent by Messrs. Sander and Sons.

(See Report of "Ghent Quinquennial," p. 266)

Auricula Gossip.

The Auricula will ever be a fascinating flower. Those who cultivate it become intensely devoted to it, and will welcome the annual exhibition of the show and alpine varieties, together with other fine spring flowers, at the Drill Hall, Buckingham Gate, on the 21st instant. The present season has been so favourable to the early and full development of spring flowers as to create a strong desire on the part of growers of Auriculas to attend the exhibition; moreover, the Auricula devotees should by their attendance shew their appreciation of the Society's efforts to promote their wishes and wants.

All cultivators will be of course looking for something new, as there is but little interest in viewing plants the counterpart of which may be left at home. The novelties I allude to must come from seedlings of first introduction, and let

me add that the preservation of the Auricula lies mainly in the continuous production of acceptedly good seedlings, which not only show more vigour of growth and beauty of foliage, but throw off annually more offsets than the old named plants; and this may be seen by a comparison of present catalogued prices with those charged on first circulation.

To experienced growers the fact will be accepted that heredity, in the vegetable as well as in the animal kingdom, has a limitation; plants disappear or deteriorate, and new ones take their place, and particularly so is it in the case of the Auricula. I can well remember (and my retrospect covers many years) some beautiful plants whose names are dearly cherished by many of the older growers that caused quite a flutter in their day, some of which have disappeared from our exhibitions, and the rest are vainly struggling to maintain their old reputation, not because they have not been carefully preserved and cultivated, but from the penalty exacted by old age.

Offsets which eventually produce plants representative of their parents, by constant reproduction become, when fully grown, stunted and meagre, the flower less beautiful in form, and the foliage loses its robustness; it therefore follows that all cultivators ought not to neglect to grow annually from seed obtained from a good source, or preferably fertilised by themselves, and saved from their own plants. It may take years of persevering labour, or fortunately but a short time may elapse to produce some seedlings which may be worthy to take a place on the exhibition-bench; but the work to an enthusiast would be well worth a persistent trial. I was pleased to see at last year's show (which was an unusually fine one, owing to a season similar to the present) some promising seedlings, and felt how much gratitude we owe to those producers who, year after year, are striving to give us something new to replace the defunct or failing plants of other days. In view of my contention that the raising of seedlings in order to secure vigour of flower and foliage must take precedence of the offset, is verified by the fact that the premier Auricula of last year's extremely good show was a comparatively recent seedling, named Mrs. Henwood, a superb green-edged plant, now to be bought at a half of its original price.

It is often asserted that as the Auricula is a spring flower, it must become after its flowering period both uninteresting and useless. Such is not the case, for after flowering, care is required in the maturing and gathering of its previously-fertilised seed; then follow the usual annual repotting, the excision of all the suitable offsets to form plants similar in all respects to the parent plants; and finally there is the constant attention to and the potting of the seedlings, and also the daily care in promoting their development. The wants of the Auricula are not many, and yet it is necessary to devote to it a daily supervision, as it needs cleanliness and ventilation; but it is liable to be attacked by the green-fly, which must be extirpated by incessant watchfulness. To keep it, therefore, healthy and vigorous, there is to be found in its cultivation occupation enough to give pleasure to the grower for a small portion of every day in the year. There is also in regard to his seedlings an added pleasure in the endeavour to coax from a kindly Natnre the best she is prepared and willing to give. It is much to be regretted that the culture of the Auricula to-day is not so fashionable as it was half a century ago. The occupant of any house with a small garden would, after a hard day's work of mental worry, if he once started to grow the Auricula, be induced for the time to throw off the contemplation of business, and seek relaxation in the enjoyment of a pursuit which would prove healthy, interesting, and compensating. *S. J. Culpeck, Sydenham, April*, 1903.

FIG. 104.—NARCISSUS VISCOUNT FALMOUTH.
Shown at Meeting of Royal Horticultural Society on the occasion of the Meeting on April 7, 1903.
(See *Gardeners' Chronicle*, April 11, p. 239.)

BLUE HYDRANGEAS.

WITH reference to the discussion that has lately been appearing in your columns as to the cause or production of blue flowers in Hydrangeas, I do not think anyone has mentioned the presence of alum, or substances containing alum in an assimilable form, in the soil.

Darwin, in *Animals and Plants under domestication*, vol. ii., chap. xxiii., says, "Alum directly influences the colour of flowers of the Hydrangea," and refers in a footnote to the *Journal of Hort. Soc.*, vol. i., p. 160; and in *The Garden* of December 11, 1897, there is an article translated from the *Revue Horticole* on the cultivation of Hydrangea Hortensia, which contains definite and detailed statements as to the action of alum. From it I gather that a clear and decided blue colour can with certainty be imparted to the flowers of this Hydrangea (at any rate when grown in pots), by the addition of certain ingredients to the soil when potting, and afterwards in the watering. The plants, after being grown from cuttings for two seasons in ordinary suitable soil, must then, to produce blue flowers, be taken out of the ground (or pots), and every particle of soil carefully washed off the roots. They are then to be potted in "a proper ferruginous compost," composed of sandy heath soil, with 10 per cent. iron slag, 3 per cent. sulphate of iron, and 5 per cent. dried nightsoil. Or "instead of this may be employed 10 per cent. of pounded slate, 3 per cent. sulphate of iron, and 1 per cent. ammonia." The plants are to be watered twice a week with water in which from 36 to 48 grains (troy) of sulphate of iron has been dissolved. There follows a bracketed note by another writer explaining that the action of the pounded slate is due to the fact that slate contains from 25 per cent. to 35 per cent. of alumina, and from 6 per cent. to 12 per cent. of sulphuret and oxide of iron. Adding that "it is owing to the combined presence of the sulphuret and oxide of iron with alum, that some argillaceous soils naturally produce the blue colour in the Hortensia blooms."

At Criccieth in N. Wales, where the soil is mostly boulder clay (with slate boulders, I think, preponderating), and which generally contains quantities of slate, especially in the gardens and made ground, owing to the free use of slate from the neighbouring quarries and the slaty sand and

shingle from the beach, Hydrangeas are frequently to be seen with blue flowers, though not invariably, and so far as I recollect, quite indifferently as regards aspect and position. Slate being so abundant in the soil there, I suspect that the fact of some of the Hydrangeas not having blue flowers is due in those cases either to the slate being in too large pieces for its constituents to be readily assimilable by the plants, or to a lack or insufficiency of iron in the soil.

The statements in the article mentioned above are very definite; but it would be interesting, and well worth while, to make experiments, as you have suggested, to confirm them; and other ingredients and varying proportions might be tested. Such experiments might also lead to further developments in the colouring of flowers and fruits. The Royal Horticultural Society's Scientific Committee did, I believe, take this subject up at one time, but so far as I remember, with rather negative results. *A. J. Bliss.*

Horticulture at Angers.—Many of our readers will be familiar with the horticultural renown of Angers, and will be glad to learn that M. Ed. André has published in the *Revue Horticole*, a condensed account of a lecture that he delivered lately on the subject, which will be read with interest.

MARDEN PARK.

[*See fig.* 105, *and Supplementary Illustration.*]

Of the many charming localities in the county of Surrey, none perhaps is more beautiful than that comprised in the Caterham Valley. From the railway line of the London, Brighton, & South Coast Company, the view in summer time is one seldom equalled in an English landscape. On either side the ground rises pleasantly, until the view is terminated by the hills that seem to shut this particular valley-scene from the whole world. The sloping hills are plentifully studded with gentlemen's residences, some of them old, but most of them new, whilst all possess laid-out gardens containing choice trees and shrubs, that have the effect of making the whole valley to appear more or less a garden. If closer observation were made, it would be found that the lanes and fields are rich in smaller growing plants that have little effect upon the landscape, but add so greatly to the joys of a walk, for of British flowering plants that succeed over the chalk there are numerous species.

Marden Park is a very large estate which, although not situated actually in the Caterham Valley, is placed in similar conditions of landscape, being in the valley lying between Upper Warlingham and Oxted. The estate belongs to Sir William Clayton, and is leased to W. Greenwell, Esq., who resides in the Hall, and farms about 3,000 acres of land upon the estate. The park itself is three miles long, and at the end of each mile there is a lodge, so that there are four of these lodges. Mr. Greenwell's chief interest lies in the breeding of Shire horses and short-horned cattle, he being very successful in both.

But even so, he must need have a garden, if it were only for the comfort and pleasure of the ladies of his family. In the supplementary illustration, our readers may see the west front of the dwelling-house and the rather imposing steps leading thereto, which are better seen in the nearer view printed above.

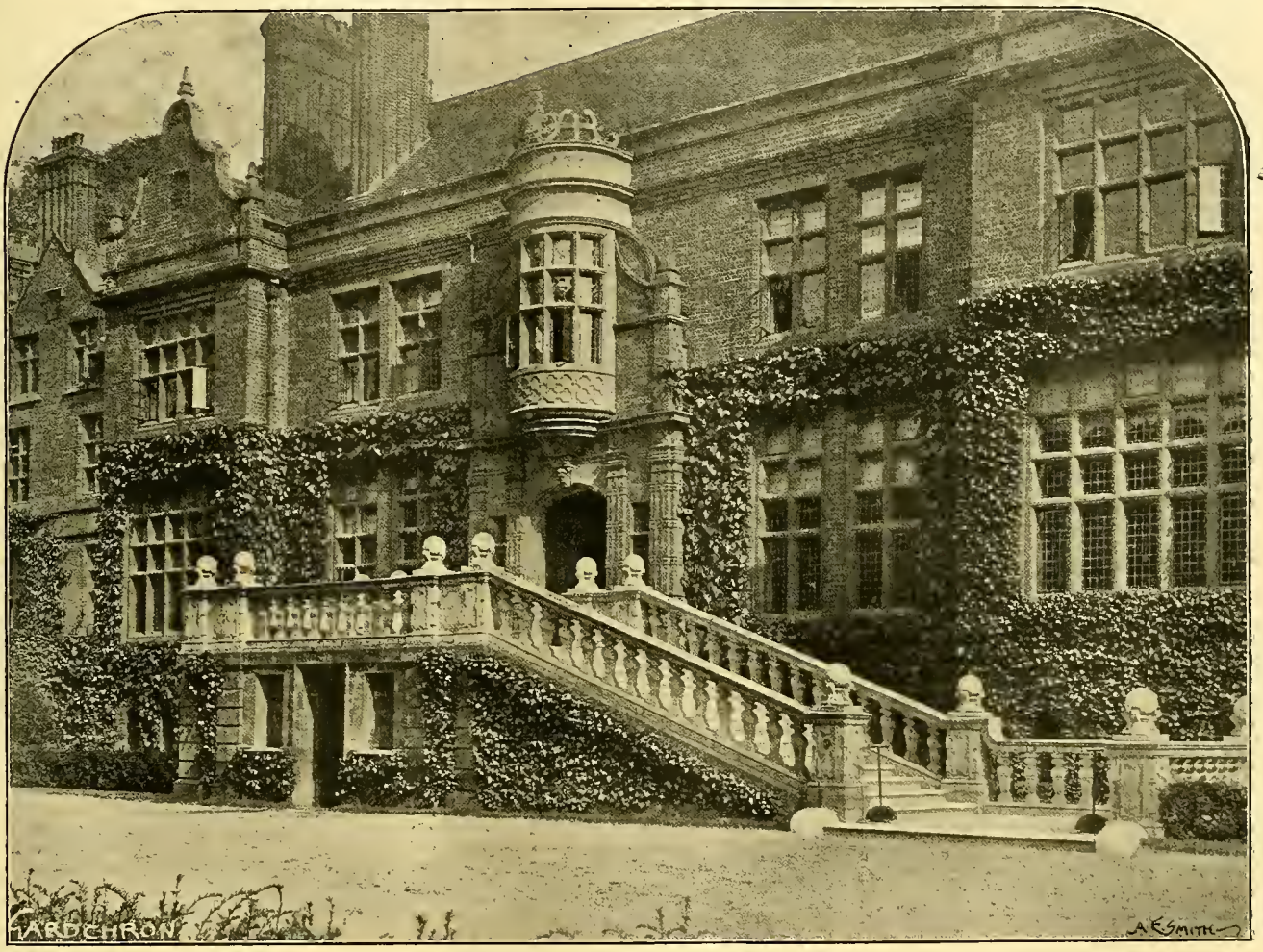


Fig. 105.—Marden Park, Surrey.

For reasons not apparent, the house is built in a low portion of the grounds, and the view from the west front is obscured by an old plantation of Beech, Ash, Horse-Chestnut, and other trees, that contain one of the strongest and most numerous rookeries we have seen. The plantation (and rookeries), it will be seen, flank the house on the north side also. The rising ground on the east side has been laid out with lawn and very few flower-beds. Not far from the house may be seen the old stableyard, from which it is obvious that Marden Park has been a residence for centuries, although the present red brick building is comparatively new, and may have been built, like its predecessor, upon a different

site than the original mansion. The old thatched buildings in the stableyard, and chapel that now serves the uses of an office, are a few remaining links with a forgotten past.

Owing to the chalk which underlies the soil upon this estate, many trees are short-lived. The Oak succeeds for a time, but when its roots reach down into the chalk it becomes stunted and poor, and many of the Coniferous species suffer similarly. But the Beeches, Ash, Horse-Chestnut, and some others succeed well. The Spanish Chestnut is a failure. A fine specimen Beech tree with a clear, beautiful stem of over 30 ft. high before branching, is worthy of notice.

The kitchen-garden is old-fashioned, and the fruit trees it contains have been partially renewed in recent years, which was very necessary.

Of indoor fruits cultivated, there are Peaches and Nectarines, Vines and Figs. The Vines succeed uncommonly well, and Mr. Lintott has frequently exhibited his produce successfully at the competitive exhibitions in the autumn, a most gratifying circumstance considering the defective means of cultivation as compared with those in some gardens.

The remaining glasshouses are used for the cultivation of plants and flowers. A span-roofed structure 85 feet long, and 20 feet wide, in two divisions, contains in one division a collection of the showier Orchids, most of the plants having been acquired in late years. A large plant of Dendrobium nobile has lately borne 500 flowers. Mr. Greenwell will probably become an enthusiastic Orchid cultivator.

An interesting item in the park is that of a plantation of young trees (Beech-trees, if we remember rightly), with a circle of iron railings around it. The trees are named individually after Mr. Greenwell's children; there are thirteen of them, and, like their patrons, are making healthy development.

CULTURAL MEMORANDA.

RICHARDIAS.

Several varieties of this popular greenhouse plant have been introduced into commerce in recent years, so that there are now a dozen known varieties in cultivation; still, the old favourite R. africana (Lily of the Nile) holds its own against all the newcomers as a greenhouse, conservatory, or table plant. The large white funnel-shaped spathes, borne on stout stems well above the green leaves, are very telling in effect. R. nana (Little Gem), owing to its very dwarf habit, is a pretty plant for decorative purposes when grown in 3-inch and 5-inch pots; it is in every respect a dwarf miniature of R. africana. R. Elliottiana, flowers pure yellow, and R. Pentlandi, large golden yellow flowers, deep green leaves, with reddish petioles, are two charming Richardias.

Although Richardias grow freely in any rich sandy soil, more satisfactory results in number and size of the spathes and foliage are obtained from plants growing in a compost that consists of four parts sound sandy loam, and one part of horse-droppings and leaf-soil, this being well mixed before potting the plants. Let the pots be new or clean, make the soil firm about the roots, and apply water to settle the soil. The Richardias may be treated as almost semi-aquatic during active growth, and the plants are benefited by liquid manure in a weak state, or by dressings of artificial manure a few times a week till the spathes are developed. A good stock of these plants may be worked up in a year or two from a few plants well established in 10-inch pots by shaking every particle of soil off the roots, shortening back the latter, and potting every bulblet or bit of plant, however small, into pots ranging in size from 3 inches to 6 inches in diameter. Stand the pots in a cold pit or frame, afford water sparingly at the first, and frequently after the roots have taken to the soil, and with this object in view keep close for a week or ten days, after which fresh air may be admitted, increasing the amount given as the plants advance in growth and the weather becomes warmer. Should green-fly infest the plants, fumigate with tobacco-paper or XL-ALL compound. *H. W. W.*

PYRETHRUM ROSEUM.

These pretty hardy perennials, of which there are many varieties, may be readily increased by division at this season, and if planted where there is ample space for full development, and the plants are not crowded or shaded by other plants, they soon make strong growth. Pyrethrums are also useful as cut flowers. The plants may also be raised from seed. They should be transplanted every second year, and be afforded a strong loamy soil and plenty of manure; the plant not attaining its proper vigour in light soils, unless heavy loam be mixed with the staple, and liquid-manure applied in the summer time. *H. Markham.*

The Week's Work.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury.

Lælia Jongheana. — This beautiful plant has been making a fine display for the last six weeks, but now that flowering is over, it should be placed in a light position in the intermediate-house and rested for some length of time, only sufficient water being afforded as will save the pseudo-bulb from shrivelling and keep the roots in a healthy state. The proper time to repot or top-dress is when fresh roots form on the new pseudo-bulbs, that is, a short time after the flowering has ended. The same kind of potting-mixture as that recommended for L. præstans in a recent calendar, is a suitable one. When the pseudo-bulbs start again towards August, the plants should be removed to a cooler part of the Cattleya-house, to finish their growth.

Phalænopsis have often baffled some of our best cultivators, and failed to afford satisfactory results. Some gardeners have of late given the plants a trial in leaf-soil as a potting medium with good results, so far. The plants generally are putting forth new roots, and those that need attention in the matter of compost, baskets, &c., should be put into good order. When living roots cling to the bars, the decayed wood, if any, and some of the potting materials, should be carefully removed, and the plant, pan, or basket, if sound, immersed in a pail of tepid water, by which means roots and receptacle are cleansed. All dead and dying roots should be cut off, and the drainage put into good order. Having done these things, fill the baskets, &c., with live, clean, chopped sphagnum, washed in clean water several times, making it moderately firm at the base of the plants. Such of the plants as are in need of new baskets, &c., must have the roots carefully removed from the bars, and then be plunged in tepid water for one hour or longer to loosen the roots, and allow of their being detached with a thin-bladed knife. After the plants have been removed and supplied with new receptacles, proceed as advised above. If thought advisable, a few of the plants may be grown in pans filled with leaf-soil, the surface being covered with sphagnum. With this sort of material, water must be sparingly applied with a fine rose-water-can, till the roots obtain a grip upon the compost. Shading should have close attention, or the leaves will become limp. On sunny days the baskets and undersides of the leaves should be syringed with tepid rain-water, and the walls of the house, paths, &c., damped often during the day, and air admitted. The more shady part of the East Indian-house is usually that chosen for these plants; but when a house can be set apart for them, a temperature of 75° to 80° by day, and 65° to 70° by night, may be afforded.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Celosias.—Prick off into quite small pots, filled with light soil, plants from early sowings, and place near the glass in a house having a night temperature of not more than 60°, stopping them when 3 to 4 inches high, and shifting into 5-inch pots as soon as large enough, employing a rich porous soil. Ply the syringe often among them, or red-spider will soon disfigure them; pinch out the points a second time when growth is active, and make another sowing, but growing the plants after this date in cold frames from the end of next month.

Balsams.—Sow in 48's, place on a brisk bottom-heat, and treat similarly to Celosias, excepting that the stem-point should not be stopped. Shift into larger pots before the plants get pot-bound, or premature flowering will occur; and employ a rich loamy soil, with a quarter of the whole consisting of leaf-soil in a not much decayed state, and much rotten dung. The pots for the last shift need not be larger than 8 inches in diameter. Always when shifting pot low down.

Cyclamens.—Remove the plants intended for keeping another year to cold pits or frames, reducing the water supply gradually, and allowing the plants to rest until early in the month of July, but not drying off the corms as some growers do. Young plants should be repotted from time to time as they need rooting space, making use of a light rich soil, such as that consisting of one part of turfy loam, half the quantity of leaf-soil and well-decayed manure respectively, dried cow-dung passed through a ¼-inch meshed sieve, and coarse silver-sand in quantity, together with some powdered charcoal. After the middle of next month the plants should be placed in cold frames, and carefully ventilated and afforded water, a light shade being drawn over the lights during bright sunshine from 9 A.M. to 4 P.M. Fumigate on the first appearance of aphis, and syringe the plants in the early morning and when closing the lights.

Primulas.—P. sinensis and P. obconica require a long season, if strong plants which will bloom from December onwards are required. Let seeds be sown in pans filled with a fairly light kind of soil, to which water should have been applied a few hours previously to sowing; bury the seed a quarter of an inch deep, and sprinkle sand over the soil; cover the pans with a piece of slate, and place in a pit having a warmth of 60°. In three weeks seedlings ought to appear, at which stage remove the pans to a shelf near the glass, dibbling out the plants into other pans at 3 inches apart as soon as large enough to be handled readily. Afford a light shade when the sun is brightest.

Cinerarias.—To have plants in bloom in the autumn sow forthwith, and afford cool treatment. For flowering in January and later, sow towards the middle of the month of May and in June. The double-flowering varieties should have the flower-stems slightly reduced, and be encouraged to make shoots at the base.

Violets.—For planting in cold frames in the month of October, and for pot-culture, strong young runners furnished with a few roots should be planted on a piece of land that has been moderately dressed with leaf-mould and fresh soot, and dug one good spit deep, at a distance of 10 to 12 inches apart for the double-flowered, and 16 to 18 inches for the single-flowered varieties. The land should be kept moist till the runners have become established. Violets like partial shade, and succeed on north and west borders, or on those running alongside of espalier fruit-trees and fruit-bushes.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

The Weather.—Since my last notes were written, frosts, accompanied with cutting winds, have done much damage to vegetation, which was in a very forward state and tender. At such times planting operations, should be suspended, and advantage taken of the temporary check to carry out other operations such as the thinning of the shoots of various herbaceous perennial plants, viz., Phloxes, Michaelmas Daisies, Delphiniums, and

others of like nature which may have not been divided for a year or two, and in which the growths are too numerous to enable the plants to flower satisfactory, or withstand dry weather.

Climbers. — The growth on many kinds of climbing subjects, especially Clematis, has been rapid, and frequent attention will be needed in tying-in shoots to prevent injury by wind, and to keep the growths from becoming entangled. Greenfly will probably be showing on the young growths of climbing Roses, and must be destroyed betimes with soapy water, tobacco, or quassia-water. The spray-like growths of Jasminum nudiflorum which have flowered, should be cut back hard, and many of the weaker pieces removed altogether so as to favour the early growth of strong-flowering shoots. Plants of Chimonanthus should have the shoots spurred back, laying in here and there small quantities of the young wood, but not sufficient to crowd the plants, for thorough ripeness of the wood is essential to the successful flowering of this plant, and I have always found it do best when planted against a south wall, or near a flue from which it will obtain warmth.

Dahlias. — Old tubers, which can only be depended upon to afford early flowers, should now be started in a cool frame in some light soil or leaf-mould worked in amongst the roots. Protection should be given at night if the weather is in the least degree frosty, Dahlias being very readily injured by frost. Any necessary damping of the soil should be afforded early in the day.

Pinks. — This is a good time to increase the stock of Pinks by putting in pipings in rather sandy soil on slight bottom heat. Young plants raised in this way will, if well looked after during the summer, make nice tufts for planting out permanently early in the autumn.

Violets.—At the first favourable change in the weather, preparations should be made to raise a stock of Violets for flowering next winter. A well prepared and rather rich soil should be chosen on which to plant out the runners, and if the soil is very light the position should be somewhat shaded though open. The runners of the double-flowered varieties, Marie Louise, Neapolitan, and Lady Hume Campbell, may be dibbled-in at about 1 foot apart; and the larger single-flowered, which are now so much grown, at least 1¼ foot, so as to obtain the best results. Young and clean stemmed runners with a few roots attached should be chosen, those with warty stems not being certain to grow into strong plants.

FRUITS UNDER GLASS.

By T. H. C.

Figs.—The fruits on the earliest of the trees in pots are now ripening, and syringing must be discontinued, and the air of the house kept dryer, much moisture causing the fruit to decay at the eye before being thoroughly ripe. Keep the soil in a fairly moist condition, but do not afford manure or manure-water. The arid condition of the air in the Fig-house will favour the multiplication of red-spider, and as soon as the crop of fruit is gathered, the trees should receive a thorough cleansing if a good second crop is looked forward to. The fruit on trees that are planted in borders, which were started in the month of December, will be approaching ripeness, and up to the time when the earliest of them commence to ripen, diluted liquid manure may be afforded copiously, and never allowing them to become actually dry. Afford a warmth at night of 60° to 65°, and by day 10° to 15° higher, with ventilation according to the state of the weather. Do not allow the pots or borders containing succession Fig-trees to become dry, or premature dropping of the fruit will take place. Withhold manures from young growing trees which are not bearing fruit, but to aged trees carrying heavy crops afford them frequently, and mulch the borders with rotten farmyard manure. Stop all growths at the fifth leaf, excepting those required for extending the trees, and remove all shoots except those required to properly furnish the trees with bearing wood. Trees showing a tendency to produce soft, long jointed growths and few fruits may be noted for root-pruning or lifting in the autumn. Syringe the trees twice a day in fine weather, and at other times damp the paths, borders, and walls. Attend carefully to ventilation, and make the most of sun-heat.

Peaches and Nectarines.—Trees started early in December, and whose fruits have passed the stoning stage, may have a night temperature of 65° to 70°, if hard forcing be necessary, the lower figure being the more suitable under ordinary circumstances. Expose the fruits to the sun, raising them out of the surrounding foliage, with thin laths passed below the bearing shoots, and secured to the trellis-wires, a practice that results in high-coloured fruit. Examine the borders, and if found to be approaching dryness, sprinkle them with a fertiliser, and afford tepid water. Ventilate freely in fine, but with extreme caution in cold weather. Syringe the trees twice daily, and keep the paths and borders damp during bright days. Clear the trees of insects before the fruits commence to ripen, syringing forcibly with tepid water, and applying XL-All to get rid of aphis. Tie-in the shoots thinly on succession trees, removing all for which there is not ample room to develop properly, but retaining those nearest the base of this year's bearing shoots. Relieve the trees of some of their fruits where there is an abundant set, retaining only those on the upper parts of the branches. Owing to the fine weather in the month of February, trees in late houses are in a very forward condition, and require constant ventilation, more or less, according to the weather; and no more pipe-heat than is necessary to keep out frost.

THE KITCHEN GARDEN.

By John Fleming, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Mushroom-house.—Any beds that are showing signs of exhaustion should receive a heavy application of tepid farmyard manure-water; beds that are quite exhausted should be removed, and new ones made up elsewhere. The air being drier than hitherto, the walls and paths should now be damped more often by day. After this date it is advisable to make no more fresh beds in the house, but to make them in the open air during the period May to July, placing them on the north side of a wall, or in a cool, shady spot underneath or near to tall trees. If only the longer litter be removed, and the short straw and horse-droppings made use of, the beds will retain their heat, and remain in bearing for a long time. For affording out-of-door Mushrooms, the materials should be formed into a ridge 3 feet high, and 4 to 5 feet broad at the base. Let the materials be well trodden and beaten as the construction proceeds. Spawn the beds when the heat has declined to 98° (blood-heat), and soiling them a week later. In order to preserve warmth in the beds, cover them as soon as spawned with clean straw or long litter.

Celery.—Should land be now available, let the trenches be dug out. For early Celery I prefer to plant one row in a trench, and to separate the trenches by 3 feet of soil, the trench itself being made 1 or 1½ foot wide at the top. For late Celery and large growing varieties, 4 feet between the trenches, and trenches 20 inches wide, is not too much. The soil may be taken out to the depth of 1 foot, the bottom broken up with a digging-fork, and the manure put in, thoroughly trampling it firm, and on this a layer of soil 4 inches thick, taken from the sides, spread over it. If the soil is retentive and cold, the trenches may be of less depth. The spaces between the trenches may be cropped with Lettuces, Spinach, or French Beans, which will be cleared off before the first earthing-up takes place.

Peas.—In order to keep up an unbroken supply of Peas during summer, rather more than ordinary care is necessary, and trenches should be prepared as for Celery, especially if the land is of a light porous nature. Sow thinly, so that there is no crowding of the plants, and consequent weak growth, the produce from a sturdy plant being much finer and more abundant. Peas coming through the ground should be afforded a slight application of fresh soot and lime as a protection against slugs and birds; and the plants earthed up early and staked before the haulm begins to run.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Foetescue, Esq., Dropmore, Maidenhead.

The Weather and the Fruit Crops.—The cold winds and storms of snow and sleet, and keen frosts at night, have occasioned much loss of fruit in this neighbourhood. Cherry, Pear, and Plum-trees were in full blossom in the orchards, the former largely grown in southern Buckinghamshire, and the trees have, I fear, suffered much from the frost. Here 6° were registered on three consecutive mornings, and I hear of 12° having been experienced in the Thames Valley. Whilst cold weather prevails the disbudding of Peach and Nectarine trees as a matter of prudence must be discontinued, the young growths affording a certain amount of protection to the fruit; and as blister and curl are sure to follow the frost, plenty of shoots should be retained from which to select. Plums and Cherries on walls, which have been afforded protection, are so far safe, but on trees standing away from the walls the fruits have suffered much loss. At the time of writing the signs indicate a continuance of the cold weather, and no effort should be spared to afford protection to trees in blossom. Small pyramidal Pear-trees should be covered with scrim, canvas, &c., at night; but in the case of large standard trees it is difficult to afford any kind of protection. [Smoulder fires might be lit on the windward side of plantations, and kept burning during the night. Ed.]

Strawberries. — Afford the beds a plentiful mulch of stable-litter, bringing it up close to the plants, and shaking some of the lightest straw over the plants as a protection to the flower-trusses, now emerging from the crowns. Royal Sovereign is notoriously a tender variety, partly owing, doubtless, to the greater length of the stalks of the flower-trusses pushing them up above the foliage. The litter should be removed from off the foliage when the weather becomes genial. It will do no harm if kept on for a few days, if laid on thinly.

THE APIARY.

By Expert.

Feeding Skeps.—The bees should be given a little warm syrup, by placing a bottle-feeder on the top, or a bottle tied over with three thicknesses of cheese-cloth; the bees will easily suck the syrup through the feeder. Where there is no feed-hole, cut out the top with a sharp knife, but do not cut the hole any larger than will be sufficient to take the feeder, and if this be used with a wooden bottom, first place a small ring of dough round, and then squeeze the bottom down to prevent draught. In cutting the hole do not shake the bees, and have a carbolic cloth handy in case they come out with a rush; and before touching the skep at all, puff in a little smoke at the entrance. Where bee-keepers do not care to cut their skeps, make a little trough out of a Willow-stick, and feed them by inserting this in the entrance; it can be hollowed out with a knife quite easily. But this way of feeding is not very good, as it causes robbing. The light skeps only will require feeding; where the weight of the skeps is fairly good, no feeding will be necessary, but they should be uncovered and looked to, to see if mice have been there.

Bar Frames.—Feed still, but very gently, and if any extra frames full of honey are to be spared from stocks that have died, on a fine day place them in the weakest hives as quickly as possible, the cold winds doing harm if the operation is long protracted. Wet coverings should be removed, and dry ones afforded. Any wax-moths seen while examining the hives should be destroyed. Supply each hive with a little fresh naphthaline, and a little flaked naphthaline should be sprinkled on the quilt. Where no water is at hand, place a shallow bowl filled with water near the hives, with shavings, straw, or small pieces of wood placed on top to prevent the drowning of the bees. Do not destroy any Dandelions, as bees visit them a great deal for pollen; but after they have done with them, these weeds may be destroyed.

APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

WEDNESDAY, APR. 29—National Auricula Society Show (Midland Section) at Birmingham.

THURSDAY, APRIL 30—Norfolk and Norwich Horticultural Society's Show. Colchester Rose and Horticultural Society's Show.

MEETINGS.

WEDNESDAY, APR 29—Chesterfield Chrysanthemum Society's Meeting.

THURSDAY, APRL. 30...Irish Gardeners' Association.

SATURDAY, MAY 2—Société Française d'Horticulture de Londres.

SALES FOR THE WEEK.

WEDNESDAY, APRIL 29—
At Stevens' Rooms, Auction Sale at 12.30.—Established Orchids, Palms, Orchids, Rhododendrons, Pæonies, &c.—Palms, Plants, Perennials, Liliums, Geraniums, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

FRIDAY, MAY 1—
Orchids in large variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —50·4°.

ACTUAL TEMPERATURES:—
LONDON.—*April* 22 (6 P.M.): Max. 50°; Min. 35°.
April 23 (Noon): 48°; cold wind, fine.
PROVINCES.—*April* 22 (6 P.M.): Max. 46°, Scilly; Min. 37°, Shetland.

FROSTS AND THE EVESHAM FRUIT CROPS.—Although it is always difficult to estimate the damage to fruit trees and the crop of fruit remaining until some weeks after a frost, there can be no doubt that the frosts of the past week have been disastrous to growers throughout the Vale of Evesham, as well as in other parts of the country. Up till Thursday, it was known that the Plums had been thinned, but it was felt there were still enough left to make a big crop, and the frost of Thursday morning (15 deg. colder than at Christmas), undoubtedly played havoc in many of the gardens. There are many plantations where all the Plums appear to have been killed, and upon the most favourably situated plantations a large percentage have been destroyed. Gooseberries too have been killed in many parts, and Peas, Strawberries, and plants have been injured or checked.

A STUDY OF GRAPE-POLLEN.—The following summary is taken from a bulletin of the New York Agricultural Experiment Station, by Mr. N. O. BOOTH:—I. The self-sterility which is known to exist among many varieties of cultivated Grapes is in many cases, if not all, due to a lack of potency in the pollen. II. This lack of potency is indicated in the pollen-grains by a shape which is quite different from that of potent pollen. III. It is also shown in the arrangement of the pollen, either dry or in liquid media. IV. Certain varieties of Grapes bear pollen in which both the potent and impotent forms are mixed. Trial of this mixed pollen shows that the amount which germinates is approximately in proportion to the potent forms present.

NEW CHAIR OF FORESTRY.—A meeting of the governing body of the Royal Agricultural College, Cirencester, has just been held, when the report of the Board of Agriculture Committee on British Forestry was taken into consideration, and it was unanimously decided, in consequence of the recommendation contained in the report, to remodel and largely develop the teaching of forestry at the College, in connection with the Estate Management Branch of the curriculum. In furtherance of this object, it was unanimously resolved to create a new chair, to be entitled, the Chair of Estate Management and Forestry, and to appoint thereto a special professor or lecturer, who shall be required to devote all his time to the duties of the chair, and who shall have had good experience, not only of the management of woods in this country, but also on the continental system of sylviculture followed in the state and communal forests of France and Germany. This will be the first attempt in England to deal with this important question on these lines.

THE RETIREMENT OF MR. HUNTER.—We have before us particulars of the interesting proceedings that took place on the occasion of the presentation of a purse containing 65 sovereigns to Mr. HUNTER on his retirement from the superintendence of the gardens at Lambton Castle. The presentation was made by Mr. D. THOMSON, whilst Mr. BERNARD COWAN took the opportunity on behalf of the subscribers to present Mrs. HUNTER with a gold bracelet. We are so pressed this week, that we must defer further notice of this ceremonial till next week.

THE WEATHER IN ABERDEENSHIRE.—The most severe weather yet experienced since winter was ushered in, writes an Aberdeenshire correspondent, was that during the week ending Saturday, 18th inst., when, throughout the whole week, heavy showers of snow and sleet fell accompanied by a bitterly cold northerly wind, and severe frosts. During the week under review, the thermometer indicated from 7° to 8° of frost, while further south we hear of from 10° to 15° of frost being quite common. As may be supposed, the effect of such severe weather has been most disastrous to vegetation, particularly in gardens, the early blossom on fruit-bushes, which was coming forward rather prematurely, having been in many cases completely spoiled. The Gooseberry-crop will suffer very much, the blossoms, which in many cases were well developed, now hang, like the foliage, limp and dead. With Sunday, 19th inst., there came a change for the better, the cold blustering weather of the previous six days giving place to calmer conditions. Nevertheless, up till the time of writing (Tuesday afternoon) snow still continues to fall, although not quite so heavily. In many districts the depth of snow reached from 8 to 9 inches. Sleighs were freely in use, and in not a few places the roads were blocked, the first experience of the kind this winter.

THE "RAOUT" AT GHENT.—The staging of plants was not confined to the exhibition. At the Raout, offered by the Chambre Syndicale, Mr. Vuylsteke showed two fine spikes of Odontoglossum × ardentissimum, remarkable for the coloration of the blotches on the perianth segments, which, in this case, were of a bright mauve-purple.

THE WEATHER AT GHENT.—The early days of the great exhibition at Ghent were not remarkable for the geniality of the weather. The KING arrived, and the uniforms of his escort were thickly coated with snow. Addressing the PRESIDENT, he said, "My dear COUNT, you are indeed a magician, by your agency I have passed in a moment from the rigours of the North Pole to the splendours of the tropics!"

INTERNATIONAL AMENITIES.—The editor of the *Gardeners' Chronicle* lately received a telegram of congratulation from the staff of the Berlin Botanical Gardens and Museum—a great compliment from such a source.

HORTICULTURAL INSTRUCTION IN WORCESTERSHIRE.—The Rev. F. R. LAWSON, Vicar of Clent, Stourbridge, has been elected on the Education Committee for the County of Worcester, as representative of horticultural instruction in the county. Mr. LAWSON has been honorary secretary for horticultural instruction in Worcestershire since the Technical Instruction Act came into operation, in 1891.

HOME CORRESPONDENCE.

THE SEASON.—Up till yesterday the fruit crops in the Isleworth district promised a remarkable yield, the best promise that I can remember. Last night's frost has, however, effectually sealed the doom of this year's stone-fruit crops. The Plums have been destroyed, and the Apricots have practically shared the same fate. Peaches and Nectarines have suffered greatly; Cherries on walls seem to have escaped. Pears and Currants have both been caught at a very critical time, but it is difficult to say how much they have suffered. Apples have escaped. All this damage was done by 4° of air frost, but this air frost lasted for over eight hours. I estimate the damage done in this (very sheltered) garden as under:—

Varieties.	On walls.	In open.
	%	%
Plums	95	100
Apricots	75	100
Peaches and Nectarines	20 to 80	30 to 90
Cherries	...	20 to 90
Pears	...	30
Apples	...	...

in percentage of loss to crop. Of course, specially protected wall-fruit has not suffered much. The foliage of all ornamental Acers has been cut back. It is the most destructive frost we have had in April since 1892. *A. Worsley, April* 16.

—— There appears to be some discrepancy between fact and report as to the condition of the fruit crops in fruit-growing districts south of the Thames. Some reports had it that the Cherries, Plums, and small fruit generally were ruined in Kent—the frost had come down "like a wolf on the fold"—the result of ravage being ruin to many. This report was repeated with additions, respecting the fruit crop, in South and West of France, sundry districts of Germany, and weather panic was spreading dismay in Austria. About a week after the issue of the report No. 1, came a flat denial as to the conditions in Kent. All was false! Frost there had been, possibly still is, but there had been no rain up to date, and so the fruit was safe. Growers generally laughed at the reporters and their news. Let us hope that growers in other places may be able to laugh, that those who read may not run to disseminate the news, but rather wait a week for "corrections"—waiting will not affect the crops, either at home or abroad. *E. C.*

—— During the past week we have had frost at Poltimore Park every night, varying from 4° to 16°. The young shoots of Styrax obassia, Stuartias, and Abies sachalinensis are much damaged. Gooseberries and Red Currants are, I fear, much cut up; Pears on walls appear to be uninjured at present, also Cherries; but those fruit trees in the open must doubtless have suffered. Potato-haulm when unprotected is blackened. The nights are dry, which is something to be thankful for; but with an almost cloudless sky, bright sun, and a biting north-west wind, the weather is far from genial. The fruits on outdoor Peach-trees appear to be safe, with the protection of nets; but these are not sufficient to prevent curl and blister. Strawberries are not as yet advanced enough to have been damaged. There was an unusual amount of Pear blossom, and the flowering of the Cherry and Apple was very early, some trees of the Irish Peach Apple having been open at the end of last month. The recent frosts have checked growth on most kinds of trees, and it is to be hoped that we have seen the worst frost this season. *T. H. Slade, Poltimore.*

—— It is to be feared the weather during the past ten days has played havoc with many of the more tender plants and shrubs usually considered out of danger after April month comes in, in this part of the country. Expanded Rhododendrons have lost their flowers, as though these had been picked off by hand. Magnolias stellata, conspicua, and parviflora, are all blackened, and the young growths of the latter are quite ruined; the same can be said of Andromedas floribunda and japonica. Wistaria sinensis, generally such a picture here at the end

of April, will cut a sorry figure, as a vast number of the forwardest racemes are quite withered up. Roses out in the open have their forward shoots blackened. Stauntonia latifolia and hexaphylla are in the same state, and many of the taller-growing early Tulips had their flower-heads resting on the ground on the morning of the 16th, from which they have not recovered, 6° of frost being too much for them. It is too early to say what damage has been done to stone-fruits and to Pears, but it is almost certain that a great many Plum trees as well as Pears will be denuded of their fruits. At present, Peaches and Apricots appear all right, thanks to protection, though aphis and blister has made its appearance with the former, and measures must be adopted in earnest, or serious results will follow. Among vegetables, Asparagus, permanent and newly-planted quarters, are at a standstill. Early Cauliflowers are stunted, spring-sown Onions are through the ground, but make no headway whatever; and early crops of Potatos near the coast are completely levelled to the ground. Although March was our wettest month, the farmers are calling out for rain so that they may be better able to work their ground for small seeds, and a few showers would greatly benefit the gardener, but warmer weather is necessary with it. *J. Mayne.*

—— The past week will long be known by gardeners and fruit-growers as the black Easter of 1903. On every hand are heard deep laments over the injury wrought amongst fruit-bloom and germ by the unusually severe frosts of mid-April; even bloom-buds in an immature state, when examined, being found quite black and destroyed. So much is this the case, that it is most difficult yet to estimate the full extent of the injury done. This form of harm is not limited to tree-bloom alone, although it is the Apple chiefly that yet has bloom-buds unexpanded, for Strawberry bloom-buds in the same undeveloped stage have been similarly injured, even on warm borders where some shelter was afforded. It is observed by a paragraph in a weekly paper that no harm has been done by the frost in Kent. That is very hard to believe, as that county, even if, as is said, the bloom has been dry, yet must have felt the effects of the several recurring sharp white frosts of from 10° to 12°. Bloom, when dry and strong, may withstand one or two such frosts, but none can encounter several such in succession without suffering great injury. Even on walls, where naturally fruit trees have appreciable shelter, both Plums and Pears have been hard hit. Sometimes the fruits, when examined, are found to be black within; in other cases, where the fruits seem sound, the stems are blackened. Even bush fruits have not escaped, also. In low-lying districts the harm done is greater than in elevated ones, where the air is dryer; but the snow and sleet storms which marked the Easter-time were very general, and of necessity made the bloom or buds or immature fruits wet, thus intensifying the frost-effects. We had in March what should be April weather, with the result that it developed all descriptions of fruit-bloom unusually early, and giving a promise that was to the optimistic most exhilarating. April, however, gave us March weather, with the results now seen. It has been a severe slap in the face for British fruit-culture. *A. D., Surrey.*

—— As have prevailed elsewhere, in the Midlands we had precisely the same frosts and withering winds here, which have wrought about the same amount of harm amongst our smaller amount of Pear and Plum blossom as it appears to have done in the Vale of Evesham. On Sunday, April 19, the glass began to give way, and has continued to go down ever since. This afternoon (Monday) the wind has veered round to the south-west, and the temperature is now as mild as anyone could wish it to be. We might almost be pardoned for saying that we appear to have drifted all of a sudden from an arctic into a temperate zone; and it is seriously to be hoped that we will remain there for as long as that temperature will suit us. Apple-blossom, which is yet unexpanded, we flatter ourselves is so far safe; and let us hope that some also of the unopened Pear and Plum blossom will have escaped. *W. Miller, Berkswell, Coventry.*

—— The following numbers of degrees of cold were registered at Ashby St. Ledger, Rugby, last week, viz., April 13, 7°; 14, 9°; 15, rain and snow; 16, 12°; 17, 11°; 18, 9°; 19, 12°; 20, 8°. The outside fruit crops have suffered severely, and the only fruits which look uninjured are Apples, which are very late in blooming. *Wm. Camm.*

PINK-COLOURED ANEMONE BLANDA.—In reply to Mr. W. H. Divers' interesting note, I regret that I cannot at present give the date of the first flowering of the pink-flowered Anemone blanda raised by Mr. Allen. I hope to ascertain shortly, but it is not unlikely that Mr. Divers may have anticipated Mr. Allen, and we have to thank him for informing us of the existence of another plant giving the coveted colour. *S. Arnott, Carsethorn by Dumfries, N.B.*

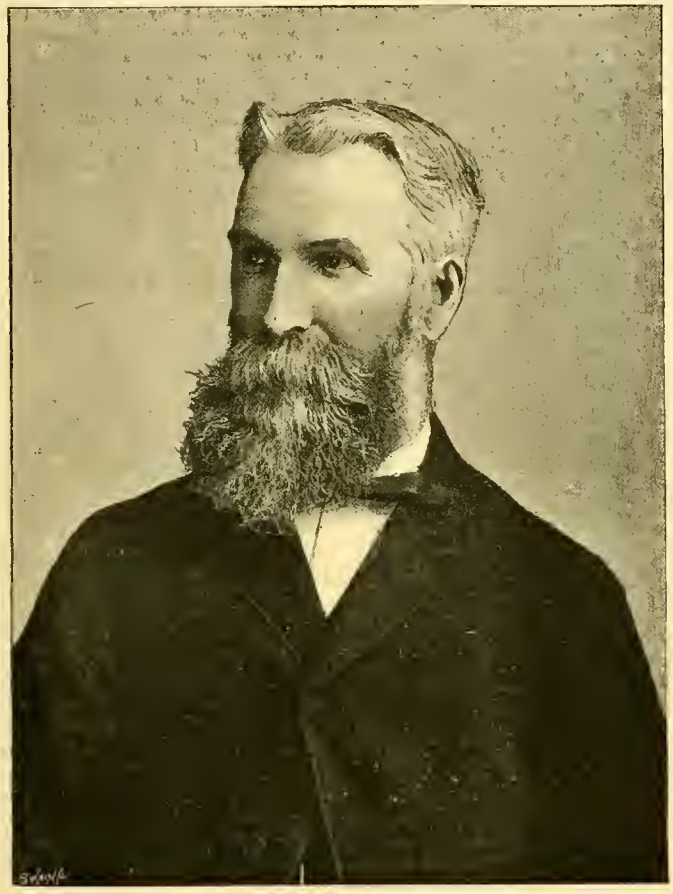
AN ANSWER TO THE ENQUIRY OF "PINKIE," REGARDING TOMATOS.—If "Pinkie" would sow Sutton's Winter Beauty Tomato on September 1, and grow them on very sturdy, shifting them three times so as to get as much root as possible, before placing them in 10-inch pots, this would be about the middle of December, afford them a very gentle bottom heat to induce root action, and a good position with top heat of 70° by day, and 63° to 65° by night, in accordance with the state of the weather, when the plants flower gently tap the wires they are tied to, to distribute the pollen, and carrying out all the details, it is certain that ripe fruits may be gathered on the 1st of March. In my own case, I sowed this variety on September 17, 1902, and gathered the first ripe fruits on March 22, 1903. *Jno. W. Barks, Bletchingley.*

PUBLICATIONS RECEIVED.—*The Agricultural Gazette of New South Wales*, February. Contents: Pot Experiments to determine the limit of Endurance of different Crops for certain Injurious Substances, F. W. Guthrie and R. Helms; Bottling Apples, W. J. Allen; Seed Wheat, N. A. Cobb; Sorghum Hay, Thinning Tomatos to increase size of Fruit.

ARCHIBALD BARRON.

A JUST and upright man, conscientious, of good abilities, sound judgment, and extensive knowledge, he was the friend of all, and the enemy of none. So long as gardeners grow Vines, so long will the author of *Vines and Vine-culture* be held in estimation. His work on Apples and Pears, though less known, is equally sound, but it remains buried in the *Journal of the Royal Horticultural Society*. To reprint these articles in a separate volume would be a fitting tribute to the great pomologist.

The funeral took place on April 18 in the churchyard adjoining the old church at Chiswick—a corner of the old world, quaint, pictural, and rich in associations, but hemmed in by the unlovely slums of a modern suburb. Here



THE LATE ARCHIBALD BARRON (IN MIDDLE AGE).

were gathered together to pay the last tribute of respect the Superintendent and staff of the Royal Horticultural Society's gardens at Chiswick, representatives of the Floral, Fruit, and Scientific Committees, of the Gardeners' Orphan Fund, and of the horticultural Press, together with pupils and old friends. Among those present were Dr. James Wilke (nephew), Edinburgh; Dr. F. Lawrance, Captain Robinson, R.N.; and Messrs. M. and G. H. Jupp, H. Miller (Secretary Church Association), J. Gammie, S. Sullivan, J. T. Musgrave, T. Stevens, Dr. Masters, Messrs. H. B. May, A. Dean, G. Wythes, E. T. Cook, J. Fraser, J. Thornton, W. R. Matthews, C. Lawrence, Cox (of Messrs. Sutton), S. T. Wright, T. Humpbreys, T. W. and H. Turner, and S. R. Alexander. No doubt many others would have been present, but that they were attending the great Ghent show.

Archibald Barron was a native of Aberdeen, a

district whence so many good gardeners have come, that it has given rise to the saying that they are propagated by cuttings in the northern city. His father was gardener at Crathes Castle, where his son passed his novitiate, and acquired a knowledge of vegetable culture, of florists' flowers, and of the general routine of gardening, not omitting the use of the scythe, for in those days mowing-machines were not. From Crathes he went south to Orton, near Peterborough, where he took part in the formation of the celebrated pinetum at that place, and thence proceeded to Arundel Castle, where the foundations of his knowledge of fruits and fruit culture were securely laid. His superior, Mr. McEwen, was a celebrated fruit-grower at the time, and Barron profited not a little from the procedures he witnessed at Arundel.

The gardens at Shrubland Park, near Bury St. Edmunds, were the next field of Barron's work; but he did not remain there long, but proceeded to South Wales to assist his brother in farming operations. McEwen, meanwhile, had been appointed to be Superintendent at Chiswick, and summoned his former pupil to his aid. McEwen died shortly afterwards, and was succeeded by the late Mr. Eyles. At Chiswick, Barron came in contact with Lindley, Robert Hogg, Thomas Moore, and Robert Thompson, from whose teaching and example he benefited greatly. Indeed, it may well be said that the mantle of Thompson descended to Barron.

Chiswick was still unmutilated, and occupied a much larger area than it does now. The big vinery had just been planted, and soon came under Barron's management, as Mr. Eyles was removed from Chiswick to undertake the management of the gardens at South Kensington, then in full celebrity, but destined soon to fall into decadence. A miserable time ensued; the Prince Consort died, the South Kensington garden rapidly degenerated, and Chiswick was sadly curtailed, and perforce neglected. Barron fought manfully under the most depressing circumstances, re-organised the garden, and rendered it highly useful even in its truncated condition. Now it was, in particular, that in spite of his retiring manners, he gained the admiration and warm esteem of his fellow workers. By his position and character he was admirably adapted for the post of Secretary to the Gardeners' Orphan Fund in its early days, and retained the post till ill-health compelled his retirement.

Ill-health also led to his resignation of the superintendency at Chiswick, and the Society being now fortunately in a better financial position than formerly was the case, was enabled to accord to him a substantial and well-earned pension. Since his retirement, gradually increasing ill-health prevented him from taking much part in horticultural affairs, so that to the rising race of horticulturists he was a name—but an honoured one rather than a personality. To those who were privileged to work with him, the case was quite otherwise, and a tie existed which no adverse circumstances could loosen.

Barron leaves a widow and two daughters to mourn his loss; and his son Leonard, after a period of probation in this office, migrated to the United States, and is now the well known and respected editor of *American Gardening*.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—The third annual exhibition of spring flowers and plants will be held in the Art Galleries, Park Lane, Croydon, on Wednesday, April 22, 1903, from 3 to 10 P.M. No charge is made for admission, and there are no entrance-fees for exhibits, and no prizes are awarded. The hon. sec. is Mr. HARRY BOSHER, 62, High Street, Croydon, to whom applications for space for exhibits should be made not later than Saturday, April 18.

SOCIETIES.

SOCIÉTÉ ROYALE D'AGRICULTURE ET DE BOTANIQUE DE GAND.

THE GHENT QUINQUENNIAL.

(APRIL 18 TO 26.)

THE fifteenth quinquennial international exhibition of this renowned Belgian Horticultural Society, which will close on Sunday, may be described as the greatest and most important horticultural show which has been held since the last "Quinquennial," in 1898. The work necessitated by the organisation of so great an exhibition, and the selection of 230 jurymen from most of the nationalities of Europe, is enormous; but the Council, with the indefatigable Comte de Kerchove de Denterghem at their head, and M. E. Fierens as their Secretary, have once again succeeded in making the Ghent Quinquennial a wonder to visitors from every country that was represented there. Since 1898, the Society has lost by death some of its best supporters, amongst whom the late M. Pynaert was known to most of the foreign exhibitors.

In addition to the permanent buildings of the Casino, a large annexe of about the same size as on the last occasion, and a smaller temporary building, devoted to the display of Orchids, were required to house the whole of the exhibits that needed protection.

The exhibition was opened during a violent snowstorm on Saturday, the 18th inst., at 2 o'clock P.M., by His Majesty the King, who was accompanied by Princess Clementine. The number of visitors from England appeared to be as large as formerly, and it

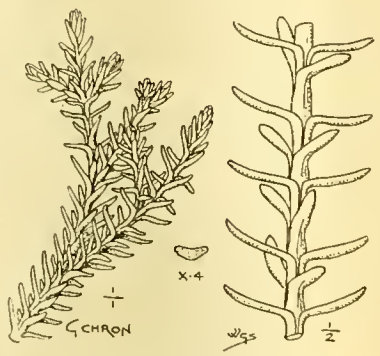


FIG. 111.—RETINOSPORA SANDERI: DETAILS OF FOLIAGE.

was remarked that at least twenty old Kewites were present.

It is quite impossible for us to give a full report of the plants shown, as their number is much greater than our space would permit, even if the arrangement of the groups was simpler, and the work of note-taking lighter.

NEW PLANTS.

One of the most attractive features of the Ghent shows is that of the new plants, which for years past have been of sufficient importance to excite much interest previous to each show. The class for TWELVE NEW PLANTS, flowering or not flowering, recently introduced and not yet in commerce, was entered on the present occasion by Messrs. F. SANDER & Co., St. Albans, who it will be remembered won 1st prize five years ago with an excellent collection, in which Acalypha hispida (Sanderi) caused a sensation. Messrs. SANDER then and now had no competitor. Their plants consist of Dracæna Broomfieldi superba, Selaginella Watsoniana, Polypodium Knightiæ, Alpinia Sanderæ, Alsophila Sanderi (fig. 103), Heliconia Edwardus Rex, Phrynium Micholitzii, most of which were described and illustrated in our last issue; also Drymophloeus Mooreanus, an erect growing Palm, with greyish-green leaves; Cordyline (Dracæna) kewensis (Supplement, fig. 109), a capital decorative variety, with green leaves and reddish stem, apparently a good market plant; Bilbergia Forgeliana (see fig. 102); Pandanus Wavrinianus, a very remarkable variety, remarkable for its white spines, and the graceful recurved leaves; and Linospadix Leopoldi (see Supplement, fig. 106).

In addition to the plants already named, Messrs. SANDER showed Retinospora Sanderi, see fig. 107; Alocasia Wavriniana, Ficus pandurata, with leaves a foot across; Asparagus myriocladus, a useful and most attractive plant, with pink-coloured stems; a monster specimen of the pretty variegated variety of Asparagus Sprengeri. Dracæna Victoria, Anthurium crystallinum illustre, with leaves marked freely with rich yellow; Saintpaulia ionatha variegata, which is not so attractive a plant as the type; Fourcroya Watsoniana, Pteris Maissonieri, from a cross between P. serrulata and P. tremula, a plant that exhibits evidences of P. tremula, but at present is exceedingly variable, many of the fronds being quite similar to those of P. serrulata. Messrs. SANDER also exhibited, on behalf of M. DREER, nurseryman, Philadelphia, U.S.A., a dozen or so magnificent plants of Pandanus Sanderi, one of the best new plants in the St. Albans collection in 1898; the leaves are variegated with rich yellow colour. The specimens being of considerable size, they showed the qualities of the plant to a remarkable degree.

Amongst other good plants in this section, though all of them were not absolutely new, were Dracæna Victoria, exhibited by M. A. TORFFAERT, Gendbrugge; Marattia Stanleyana, a handsome Fern, with magnificent brown stems marked with little white stripes, exhibited by M. F. LAMBEAU, Brussels; Clivia (Imantophyllum) miniata striata, with freely variegated leaves; Grisebachia compacta, and Cyrtostachys renda var. Duvivieriana, a variety of this pretty Palm, with nearly scarlet stems, having a most extraordinary effect. The type, when a young plant, has generally yellowish or orange coloured stems, but we have not seen previously so large a specimen. Possibly the richer and deeper colour is not developed until the plants are some years old. The specimen was shown by M. L. DE SMET DUVIVIER, of Mont St. Amand, and attracted much attention, there being no other Palm at all resembling this. The prize awarded was a Gold Medal, offered by the Comte Chandon de Brialles, President of the Society of Horticulture and Viticulture of Epernay.

M. LAMBEAU, of Bruxelles, obtained a 1st prize with "*félicitations*" in Class 10 for ten plants introduced into commerce since 1900, with a collection including Marattia Stanleyana, Ficus Eetveldiana, Pteris Droogmansiana, Asparagus Duchesnei, a fine plant trained on a balloon shaped trellis; Maranta Lujaiana, a decorative plant having green leaves; Cyrtosperma congolensis, Ficus Luciani, and Dichorisandra Thysiana.

In Class 2 for six plants not yet in commerce, a 1st prize was awarded to M. L. DE SMET-DUVIVIER, Mont. St. Amand, Ghent, who had Ficus Duvivieri, with a habit suggesting that of F. elastica, but having much thinner leaves, and being more tender; Croton gandavensis, a moderately broad-leaved variety, tricoloured; Phlebodium elegans, an elegant plant with pale green coloured fronds; Gesnera reginæ, having green velvety leaves, with white midrib and main veins, flowers bluish-purple colour; Anthurium gandavensis, a hybrid of A. Scherzerianum, with rosy-red coloured spathes; and a spotted Odontoglossum named "Rex."

Rubus reflexus (?), shown by several exhibitors, was very much admired. The leaves of this plant resemble those of a Begonia. They are thick, digitate, of a bright green colour, with darker colour following the rib and veins. As the leaves get older they assume a greyish tint, just like that of some Begonias. They are six inches long or more, and as much across at the base, but vary much in size. The margins are very slightly, and evenly toothed. Plants were shown by some exhibitors, and long growths as if cut from a Vine were used by others in decoration. It excited much comment.

A group of plants of a new Dracæna was shown by M. L. J. DRAPS DOM. 76, Prève Ste. Anne, Laeken, Bruxelles. The leaves were very rich red in colour, and the variety is certainly a first-rate decorative plant. The specimens also exhibited exemplary cultivation.

Vriesia hieroglyphica variegata, shown by M. C. VERMEIRE, of Gendbrugge, was one of the prettiest plants in the show. The upper surface of the leaves is pale green, with darker green, bar-like markings across them at distances of less than an inch; also distinct white stripes, from one end to the other; the markings are much more intense upon the underside of the leaves. This magnificent plant had about twenty leaves, and was growing in a 6-inch pot. Other new varieties of plants, including Orchids, are mentioned under the sectional headings following.

THE ORCHIDS.

AWARD OF A GOLD MEDAL OF THE ROYAL HORTICULTURAL SOCIETY.

Special accommodation had been provided for the Orchid classes by the construction of a commodious additional building fitted with a broad staging all round, and two stages in the middle portion. Every part of the space was well occupied by exhibits of good quality, and in some cases of extraordinary merit, the

whole producing a show of Orchids quite equal to the best which has been seen at any of the former exhibitions. The one exhibitor who stood out far in advance of any others was M. A. Peeters, of Brussels, who, with his marvellous collection in Class 19, not only secured the coveted Gold Medal given by His Majesty the King, but also took the Gold Medal awarded by the Royal Horticultural Society of London for the best exhibit in the show. Too much cannot be said in praise of this remarkable collection of about 170 grand specimens, among which not a single ordinary plant, or one unworthy of the exalted company in which it was placed, could be found. Experts agreed that it was the best group ever arranged, and the Orchid jury, in making their awards, appended the "*acclamations et félicitations*," so grateful to the Continental exhibitor. Every plant in the collection was in perfect condition, splendidly grown, flowered up to its best, and staged to appear at its best. Where all are so good, it is difficult to select the limited number which the exigencies of space permit us to notice, but our choice fell on the pretty Lælio-Cattleya × Mrs. Leemann (C. aurea × L. Digbyana), with its large, fringed, yellowish flowers tinted with rose; L.-C. × Madame Chas. Maron (C. Warscewiczii × L. Digbyana), a similar flower, but white and rosy-lilac; L.-C. × Imperatrice de Russie (Digbyana × Mendeli), and several other L. Digbyana crosses; also the finely-coloured L.-C. × eximia, L.-C. × Duvaliana, L.-C. × Capt. Percy Scott, and the beautiful L.-C. × Marquis de Wavrin. The Cattleyas gave a noble specimen of C. × Louis Chaton, with twenty-five flowers; C. × Mozart, C. × Vulcan, C. × Whytei with remarkably fine examples of the white and coloured forms of the C. labiata section; C. intermedia alba; C. Mendeli Wineqxi was a beautiful rose-tinted form with purple tips to the petals; C. M. Madame Louis de Hemtimme, a charming pure white; and C. Schroderæ alba and other white forms exceptionally good. Among hybrid Lælio-Cattleyas, one of the most remarkable was L.-C. × Kerchoveæ (L. anceps alba × C. Trianæ alba), a fine pure white, with yellow crest on the lip. It resembled a large pure white L.-C. × Frederick Boyle. Odontoglossums were also well represented in this fine collection, representatives of good quality in each of the sections being present, and notably O. crispum violaceum, a beautiful purple tinted flower with white margin; O. c. Myra, a spotted form; O. c. guttatum formosum, very showy; O. × Rolfeæ optimum, O. × R. gracile, fine O. × Wilckeanum, and O. × Adrianæ varieties, and the rich orange coloured, finely blotched O. × excellens "Prince of Orange." The best of the Cypripediums were C. callosum Sanderæ, C. aureum "Pomona," C. aureum "Surprise," C. × robustum, and C. × Cardosoanum. The mirror backing to the side stage groups, aided the clever arrangement effected by M. Peeters, the tall plants of Odontoglossum Edwardi, Vanda cœrulea, Phaius × Norman, and other kinds used in the back-ground, being duplicated in the mirrors. Among others also noted were Epidendrum Stamfordianum, finely flowered; Vanda Amesiana, Cymbidium Devonianum, Miltonia Warscewiczii, and a very fine Dendrobium nobile Ballianum.

Continuing, so as to fill up the end staging, not content with his great effort above alluded to, M. Peeters staged his collection in Class 39, the best collection of Hybrid Orchids, and was again successful in securing the Gold Medal value 100fr. offered for it. The group consisted of both home-raised and natural hybrids, the former, of course, predominating. Some of the specimens in it were similar to those shown in the larger group, and among those noted were Lælio-Cattleya × Mrs. Leemann, L.-C. × Chôleti, L.-C. × eximia, L.-C. × juvenilis, L.-C. × Fanyauana, L.-C. × highburyensis, Cattleya × Parthenia rosea, C. × Louis Chaton, C. × calummata rosea, Miltonia × Bleuana, Odontoglossum × loochristyense O. × Wilckeanum Germinyanum, O. × Harryano-crispum, O. × Rolfeæ, Zygopetalum × Perrenondi, Zygo-colax × Veitchi, Epiphronitis Veitchi, Selenipedium × grande, &c.

In many of the classes there was but a single exhibitor, and in some there was no entry. Commencing at the end of the staging occupied by M. Peeters, M. Vincke-Dujardin, the famous Orchid grower of Bruges, with his exhibits in different classes, occupied the whole of the staging from end to end of the structure on that side, and his exhibits may be remarked on as they were arranged. The whole of the plants, it may be said, were of uniform good quality, and in fine health.

In Class 55 (nurserymen), M. Vincke-Dujardin took the 1st prize, a Gold Medal, for the best group of Lælias and Cattleyas, with a fine display of good varieties of C. Mossiæ, C. Mendeli, C. Trianæ, C. Schroderæ, &c., of which C. S. Mdlle Marie Henriette de Wavrin was a fine blush-white, with yellow disc; C. S. Perfection, a large Peach-blossom coloured flower; and C. S. Mme. Louis de Hemtinne, a fine white, with pink-tinted lip.

In Class 21 (nurserymen), the best collection of 100 Orchids, M. Vincke-Dujardin, of Bruges, again secured the 1st prize, an *œuvre d'art*, with a good collection of Odontoglossums, both species and hybrids; good forms of the showy Cattleyas; also Cypripedium callosum Sanderæ, Cattleya Parthenia rosea, Cymbidium × eburneo-Lowianum, Cochlioda rosea, C. vulcanica, Masdevallia × Chelsoni and other brightly-coloured Masdevallias, Oncidium Papilio, &c.; a fine specimen of Aosellia africana being arranged in the back of the group, together with other elegant species.

In Class 27 (thirty exotic Orchids, nurserymen), M. Vincke-Dujardin secured the 1st prize with an excellent collection, comprising a large Miltonia cuneata, M. vexillaria, M. Warscewiczii, some very showy Masdevallias, Dendrobium thyrsiflorum, Phalænopsis amabilis, and other good things.

In Class 62 (collection of thirty Odontoglossums), the 1st prize fell to M. Vincke-Dujardin, who staged a really fine representative collection; the 2nd prize going to M. Theodore Pauwels, of Meirelbeke, Ghent, who also had a very select collection; the same order being maintained in Class 61 (fifty Odontoglossum crispum), M. Vincke-Dujardin being 1st and M. T. Pauwels 2nd, although there was a much closer contest between the two than in most other classes.

Class 68 (twelve Vandas), the 1st prize also went to M. Vincke-Dujardin, who had a nice lot of dwarf, well-flowered plants.

Joining the exhibits of M. Vincke-Dujardin, the next place was admirably filled by the Marquis de Wavrin, Villiers-au-Tertre, Ronsele, with his splendid collection of Cattleyas and Lælias (Class 54, amateurs), in which the beauties of most of the large-flowered species were admirably displayed. Among them were a magnificent large, rose-tinted Lælio-Cattleya × callistoglossa, the noble Cattleya Trianæ amplissima, and the still larger C. T. maxima gigantea, like an improvement on C. T. eboracensis; the distinct C. S. Peeter's variety, the delicately-tinted C. × Parthenia gratissima; Lælio-Cattleya eximia, and L.-C. × Chôletiana, both fine.

In Class 56 (the best collection of Cattleyas and Lælias with white flowers), the Marquis de Wavrin worthily secured the 1st prize Gold Medal "*à l'unanimité et par acclamation*," with a superb collection, in which most of the best white varieties were well represented. The Marquis' collection was recently described in our columns, p. 164, *ante*.

In Class 22 (seventy-five exotic Orchids, amateurs), the 1st prize was awarded to M. Lambeau, of Brussels, whose fine exhibit well filled the central end of the staging, his group occupying both sides. All the plants were good, well grown, and flowered, among those noted being Cattleya Schroderæ, with fifteen flowers; Lycaste Skinneri alba, in a fine specimen; a fine example of Dendrobium nobile, a very fine Masdevallia Veitchi superba, excellent Odontoglossums, Cypripedium Veitchi superba, Lælio-Cattleya × purpurato-Schilleriana, &c. In this group also was a good specimen of Liparis tricallosa, one of the few representatives of the order "botanical" in the show.

In Class 23 (seventy-five exotic Orchids, nurserymen), the 1st prize went to M. de Smet Duvivier, Mont St. Amand, who had one of the most select collections, his group comprising several remarkable Odontoglossums, and among which were noted the fine O. × Etoile Belge, a large pale yellow flower, heavily barred with red-brown; and a still more remarkable hybrid of Odontoglossum luteo-purpureum sceptrum × Pescatorei, with cream-coloured flowers, heavily tinged with purple, and bearing distinct chestnut-brown markings. Also noted were good O. × Rolfeæ, O. × Harryano-crispum, O. cirrosum, O. Halli, O. Edwardi specimens of good, large-flowered Cattleyas, fine Cypripediums, Lycaste Skinneri alba, Masdevallia × Pourbaixi, and other Masdevallias, with many flowers; a fine Maxillaria Sanderiana, varieties of Phaius × Norman, and other Phaius, Oncidiums, Vandas, &c. The 2nd prize in this class fell to M. Maurice Verdonck, Gendbrugge, whose best plants were Oncidium undulatum, very finely flowered; Vanda tricolor, Ansellia africana, a splendid plant of Dendrobium nobile, Cattleya × calummata nobilior, Lycaste Skinneri alba, the white Dendrobium Jamesianum, fine Masdevallia ignea, &c.

In Class 26 (thirty exotic Orchids, amateurs) the 1st prize was taken by M. Fanyau, Hellemmes, Lille, in whose collection were Lælio-Cattleya × Chôletiana, with two fine spikes; Zygopetalum × Perrenondi, profusely flowered; Lælio-Cattleya × Hippolyta, with two spikes; Cymbidium Lowianum, very well bloomed; Cattleya × calummata, with eleven flowers; Masdevallia ignea superba, eighteen flowers; and Odontoglossums and other species equally good. The 2nd prize went to Mme. L. de Hemtinne, of Ghent, whose collection had an interesting specimen of Vanilla aromatica, with long seed-capsules; varieties of Odontoglossum × Adrianæ, specially good; Phaius × Marthæ, of fine colour; Cymbidium Lowianum, and a noble example of Dendrobium nobile.

The 1st prize in Class 31 (thirty exotic Orchids for cold house) went to M. Vincke-Dujardin.

Class 41 (new bi-generic Orchid) found the taker of its 1st prize Medal in M. De Bièvre, Chef de Culture to his Majesty the King, who showed Lælio Cattleya × Prince Leopold (C. chocoensis × L. cinnabarina), a charming hybrid with large flowers of an uniform bright orange-yellow tint. The well-grown specimen had two spikes of three and two flowers respectively.

In Class 42 (the best collection of Orchids of Guatemala), M. M. Verdonck, of Gendbrugge, secured the Gold Medal with a good representative collection, including excellent Odontoglossum × Adrianæ, of which there were a dozen dissimilar forms; Ada aurantiaca, Masdevallias, Cattleya Schroderæ, and, of special interest, the clear yellow Oncidium Warscewiczii, O. maculatum, and Epidendrum cochleatum.

Class 48 (twenty-five Cypripediums, nurserymen) brought three competitors, the 1st prize justly going to M. E. Pynaert van Geert, of Ghent, for a very vigorous and well flowered collection including the new hybrid C. × Thompsoni - Rothschildianum, the fine C. × aureum virginale, C. insigne Sanderæ, C. callosum Sanderæ, C. nitens, and other good things. The 2nd prize was awarded to M. Maes-Braeckman, of Mont St. Amand, Ghent, for a much smaller collection, which included C. × aureum virginale, C. × Sallieri, C. villosum grandiflorum, C. × Harrisianum violaceum, C. × Fascinator, &c. 3rd prize, Messrs. Janssens & Putzeys, who had a larger and well grown collection, of which were noted as good and distinct, C. × Madame Osterrieth (superbiens Demidoff × callosum), C. × Boxo-villosum, with nearly black upper sepal tipped with white; C. × Mrs. E. G. Uihlein, the finely blotched C. Argus Morreni, C. × Mephisto, C. × Goweri, and C. Lawrenceanum with fifteen flowers.

In Class 50 (fifteen Cypripediums) M. Ed. Pynaert van Geert secured the 1st prize with a good collection.

In Class 51 (ten hybrid Cypripedes), the 1st prize was taken by Messrs. Janssens & Putzeys, Merxem, Antwerp, with good forms, principally of the C. × aureum class, among which were noted as distinct and good C. × Felix Putzeys, a very fine dark flower; C. × Antwerpensis, also good; C. × Rialto, with purple spotted upper sepal; and C. × Dr. Timmermans.

The 1st prize in class 57 (twenty Cattleyas and Lælias, amateurs) was secured by Madame L. de Hemtinne, with a representative collection, including C. Skinneri, C. Schilleriana, and excellent C. Schroderæ; the same lady securing the 1st prize in class 74 for the best Cattleya.

The prizes for the best Cymbidium (class 76) were taken, 1st by M. Tromp Meesters (Holland), with a good C. Lowianum; and 2nd, by M. J. de Hemtinne.

Class 81 (the best Lycaste) brought a very large specimen of L. skinneri from the gardens of M. A. Boelens, of Ledeberg, who took 1st prize.

In Class 25 (fifty exotic Orchids, nurserymen) M. E. Praet, of Mont St. Amand, Ghent, took the 1st prize, Gold Medal, with an excellent group arranged on the central stage. The plants were all well grown and specially well flowered. A fine variety of Odontoglossum triumphans bore two strong spikes, O. Pescatorei five spikes, Masdevallia coccinea Harryana sixty or seventy spikes, and also in the group were fine Oncidium Gardneri, O. Marshallianum, Cattleya × Parthenia, Miltonia Warscewiczii, Vandas, Angræcum sesquipedale, &c.

In Class 78 also M. E. Praet showed a fine Dendrobium Wardianum, and in class 86 a finely flowered Oncidium Marshallianum.

It may be said that while almost all the specimens were worthy of the show stand, there were but few startling novelties, and in the one direction in which the British orchidists had been expecting to be enlightened, viz., the all-absorbing "blotched Odontoglossum crispum," the show was singularly meagre, only one or two good forms being present, and the best of which was the richly spotted Odontoglossum crispum Prince Leopold, staged by Messrs. F. Sander & Co., of St. Albans, with their new plants.

The judges in the Orchid Classes were James O'Brien, V.M.H., President; Dr. Kranzlin, Secretary; Mr. De Barri Crawshay, M. du Trieu de Terdonck, and Mr. C. C. Ifurst.

AZALEA INDICA.

Here the interest is centred in the large class of sixty plants of commercial size (diameter of crown not over 18 inches), in small pots.

Messrs Sander & Sons, of Bruges and St. Albans, are to be congratulated upon having won the premier prize in a keen competition with plants that are models of what Azaleas should be; flowers of large size, colours well chosen, both self-coloured and parti-coloured varieties being well represented. The best whites were Alba magnifica, Miss E. Jarrett, Koningin der Weissen, Anna Gunkel, Sacuntlala and Madeline; of crimsons, Obert von Kutzinsky, Apollo, Flambeau, General Postmeister, Stephan, Vesuvius, of roses, Julius Roehrs, Memoria de L. van Houtte, Madame Van der Cruyssen, Lindig's Superba, Madame Louis Eeckhaute; of lilacs, Temperance is the best; of salmons, Mdlle. Marie Rosseel; of parti-coloured, Paul Weber, Vervaeneana, Madame Raphael de Smit, Mdlle. Emma Eeckhaute, Unica, Madame Joseph Vervaene, Madame Romaine de Smet, and Professor Walters, the latter being the most distinct and best of this section, the flowers of large size, and in colour salmon, rose, and pink. The 2nd prize in this class was awarded to the firm of Louis van Houtte père, with another very fine lot of plants profusely flowered, but scarcely in such good variety as Messrs Sander & Sons. The best here were, of whites, Baronne de Vriese, Perle de la Belgique, Mdlle. Marie Plancoun, and Triomphe de l'Exposition; of crimsons, Apollo, Gen. Postmeister, Stephan, Osiris, and Souvenir de Hy. Seidel; of pinks, Helene Thelemann; of parti-coloured, Schryveriana, Jean de Knoof,

Professor Walters, and Aristarkes Azarian Effendi. The 3rd prize was awarded to M. Ad. d'Haene.

For thirty plants, specimens, the 1st prize was awarded to M. Ad. d'Haene of Gendbrugge, these varied from 5 ft. to 3 ft. in diameter, the plants in the best of health, which was clearly denoted by the size and profusion of the flowers. The most noteworthy were Grandis, Roi de Hollande, Garnier, and Mdlle. Leonie Van Houtte. In this class the 2nd prize was taken by M. Joseph Vervaene with smaller but good examples of cultivation. Of these the best were Perle de Gand, Comte de la Torre, and Princess Clementine.

For a single specimen with single flowers, the 1st prize went to M. Ad. d'Haene, for an immense bush of Duchess Adelaide de Nassau, a fine example; and the 2nd to M. Joseph Vervaene, with a smaller plant of Reine des Amateurs, in fine form.

A class was also provided for 100 Azaleas in variety. Here M. Ad. d'Haene was again to the fore with examples from 2 to 3 feet in diameter; Marquis of Lorne was there in good character, a distinct brick-red, quite distinct; this exhibit embraced many kinds already quoted, whilst the plants were of a most useful decorative size. (No other exhibitor entered here). For twenty specimens the same exhibitor was again placed 1st without any competition with a similar class of plants. Here we noted Pluto, a deep crimson; and Princess Louise, a pretty parti-coloured variety, colours pale.

For a collection of twelve new varieties, the 1st prize was awarded to Messrs. Sander & Sons, for a set of most promising and distinct seedlings. The best of these were Julius Roehrs, a deep carmine, fine form; Frau Heinrich Seidel, an extra fine white, tinted green at base; Triomphe de Bruges, rose-pink, fine form; Lovely, extra large white; Princesse Elisabeth, large white, extra fine form, green blotch upper portion of flower; Mephistopheles, deep blood-red; Belgica, deep red, with dark blotch; and L'Ami Steinmetz, a large flower, white ground, with carnation stripes—altogether a fine exhibit. The 2nd prize was taken by M. Joseph Vervaene with another set, in which the best and most distinct were maculata nigra, a rich crimson, with black spots upon the upper portion; M. R. Seidel, a soft pale pink, most distinct; and Perle de la Belgique, a large and very fine white.

For a collection of recently-introduced varieties, M. Ad. d'Haene was once more placed 1st with half-specimen plants, the best of which were Souvenir de Mons. Lew, a rich purple; Phryne, white, with a pale green tint, singular; Succès, intensely double, colour purplish-rose; and Madame Léon, habit a soft pink, with white margins.

This same successful exhibitor was 1st for twelve plants of double varieties, the best being those named Pharaide Mathilde, white, with carnation stripes; President Osw. de Kerchove, salmon and white, large flowers; La France, a distinctly-striped variety; and Baron Nathaniel de Rothschild, a rich purple; Vervaeneana here was also very fine.

M. Brackenier was placed 2nd in this class with smaller plants, but in fine variety, the best being Camelliaflora, a deep salmon; Madame Joseph Vervaene, a large-flowered variety, salmon and white; and Mons. Joseph Vervaene, a deep bright crimson.

A class for six plants of A. balsaminæflora brought out one excellent exhibit, the plants dwarf and well-flowered. These came from M. L. Eeckhaute.

HARDY AZALEAS.

Azaleas, hardy hybrids (mollis and sinensis). In a class for twenty-five plants, the 1st prize was unanimously awarded to M. Koster, of Boskoop, Holland, who had a most profusely flowered set of plants, the best of which were Gloire de l'Exposition, a dark orange, with a paler shade; Madame Anthony Koster, creamy-white, and pink at the edges; C. H. Klaassen, Queen of Holland, and Marconi, a dark orange, were also noteworthy. The 2nd prize in this class was awarded to M. Pynaert.

For specimens only of Azalea mollis, M. Verhauwen, of Ghent, was 1st, being the only exhibitor.

In a class for twenty plants (smaller), MM. de Cleene Frères, of Loochristy, was 1st, and once more the only exhibitor.

For thirty standards of A. mollis, M. A. de Smet was 1st, a Gold Medal being awarded.

CLIVIAS.

These are shown in large numbers, but nothing better than those seen in England are on the whole to be found. For twenty plants, the 1st prize was taken by M. C. Vermeire, of Gendbrugge, with plants bearing large trusses, and in robust health, the best were Sir Leopold, a brilliant variety with broad segments, and pale orange base; Elfride, a fine truss, the colours merging more into each other, which is more apparent still in Reine des Belges; Rameau, with more pointed petals is distinct; and Prince Leopold, with extra large flowers. The 2nd prize in this class goes to Madame Osteerieth, of Antwerp; the plants here are, some of them, larger, but the varieties are somewhat inferior.

M. Vermeire is again 1st for twelve varieties, with similarly fine plants, Comte de Flandres being one of the best, and Mme. A. de Meyes notable for intensity of colour. The 2nd prize in this class is taken by M. Baumann, who has several large plants with five and six trusses upon the best, but the varieties are inferior; Marie Van Houtte is, however, an extra-fine variety.

For six plants, one award only was made, that being the 1st prize to M. A. Gallet. Whilst for a single specimen, the 1st prize was awarded to M. O. Lauckseert, of Meirelbeke, and the 2nd to M. V. de Bisschop de Tronchiennes.

FERNS.

The principal feature of attraction were the fine specimens of Tree Ferns many feet high, beyond which the exhibits were not specially noteworthy.

The President of the Society, Comte De Kerchove de Denterghem showed a fine collection of thirty well-grown plants of arborescent and herbaceous species and varieties, gaining 1st prize; they included Cibotium Barometz, extra fine; C. princeps, and Alsophila australis, Adiantum pentadactylon, A. elegans, &c.

In another class for thirty herbaceous exotic species, M. Pynaert van Geert won the 1st prize with finely-grown plants, which included a noble specimen of Cibotium Schiedei, in fine condition, Cyathea medullaris, Osmunda palustris, Angiopteris fraxinifolia, and Nephrolepis Bostoniensis were also noteworthy plants. M. Jules de Cock, of Meirelbeke, was 2nd in this class, staging some good Tree-Ferns, but the number required of other plants was made up with quite small or decorative examples.

Messrs. de Smet Frères were the only winners in a class for six Tree-Ferns, and with well-grown examples of such as Cyathea dealbata, C. medullaris, Cibotium Schiedei, and Dicksonia squarrosa.

For three plants in a similar class M. J. de Coen, of Meirelbeeke, was 1st, but without any opponent.

Some interesting exhibits of Tree-Ferns growing, and of split stems, and other herbarium or museum specimens, were shown by M. C. Bommer, Botanic Gardens, Brussels.

GREENHOUSE PLANTS.

Class 251 was for a collection of twenty-five plants, distinct, in flower, shown as examples of good culture: 1st prize, the late Queen's Gold Medal, and in addition, the Silver-gilt Flora Medal of the Royal Horticultural Society of England. This prize was won in excellent style by M. Beoinghaus, of Ghent (who showed well at the last Quinquennial), with some wonderfully well grown specimens. The finest of these were those of Acacia longifolia, a profusely flowered plant, 6 feet through and 9 feet high, of pyramidal form; A. verticillata, a smaller specimen of similar form; A. paradoxa, a dense bush, covered with bloom; Camellia William Dubois, a pyramid in full flower; Metrosideros floribunda, a large bush, scarcely arrived at its best condition; Darwinia tulipifera, a well-grown plant, full of flower, the most meritorious plant in the group from the cultural point of view; D. fuchsioides, a small plant, equally well flowered; Polygala Dalmaisiana, in beautiful condition, and deep in colour; Rhododendron calophyllum, a flat-topped plant in dense bloom; Bauera rubioides, with small pink flowers, very pretty; Erica Cavendishi, a compact bush, and at its best; Eriostemon floribundum, very pretty; these, with Cymbidium Lowianum and Anthurium Scherzerianum formed the chief features in this notable exhibit. The 2nd prize in this class was taken by M. F. de Smet, of Vinderhoute, with another very attractive exhibit, the plants equally well flowered, but scarcely so good in selection. The finest here were another dense bush of Acacia longifolia, of larger dimensions even; A. Riceana, a graceful plant, clothed in flower; A. linearis, a dense bush, with deep golden-coloured flowers; Erica cucullata, a profusely flowered pyramid of 5 feet in height; Rhododendron fragrantissimum, pure white, and covered with flowers; Azalea purpurea, a charming variety, with pale purplish blossoms; A. linearifolia, quite a novelty, and now seldom seen; Leptospermum bullatum, a pretty plant with small pure white flowers. These, with a dense bush of Metrosideros floribunda in fine form, composed the best in this exhibit.

In the next class, for fifteen plants of similar character, the last-named exhibitor was placed 1st with smaller but good examples, the best being a fine standard bush of Metrosideros, a beautiful bushy plant of Boronia heterophylla, a splendid bush of Azalea balsaminæflora, covered with flowers—a charming plant; Strelitzia Regina, with four spikes; and Camellia Countess Lavinia Maggi, in good character. M. Beninghaus in this class was placed 2nd with still smaller plants, but in good condition, the best being Azalea Madame Vander Cruyssen, Cymbidium Lowianum, Veronica diosmæflora, very pretty, pale lilac; Erica Cavendishi, and three good examples of Acacias.

The next class, a large one, was for forty miscellaneous plants, in or out of flower. The 1st prize here was awarded to the Société Horticole Gantoise (Société Anonyme), Ghent. This exhibit consisted chiefly of fine-foliage plants, the best being Spathiphyllum picturatum, a decidedly distinct plant, with long entire leaves of a dark green ground colour, mottled with golden yellow; Cycas revoluta, a large plant; Maranta Oppenheimiana, a dense example; Phyllotænium Lindeni, some 6 feet through, and well clothed in foliage, but with several leaves to which the scissors had been freely used to remove the margins where faded—this practice should be strongly condemned, to say the least; Philodendron Mamei, an Alocasia-like plant, with dark green foliage, blotched with pale grey; Anthurium Veitchi, not in its best character; Dracæna Godseffiana, a freely grown plant, in which form it is much better than when too much trained; Croton Baron de Rothschild, a well coloured specimen; Richardia pacifica, a well-grown plant; Verschaffeltia splendida, a Palm now seldom seen, a good plant; Anthurium Scherzerianum, a plant of medium size, but with brilliantly coloured spathes, and Aralia Kerchovei, a distinct plant. The 2nd prize in this class was awarded to the Horticultural Establishment of Flanders at Bruges.

In a similar class for twenty plants, the 1st prize was awarded to the same firm as in the larger class, and with plants of similar character, but on the whole, of relatively better quality owing no doubt to being harder pressed than in the preceding class by the next exhibitor. The 2nd prize was awarded to M. Draps Dom, of Laeken, near Brussels, whose exhibit comprised an extra fine plant of Dracæna Sanderiana; a good example of Pandanus Baptisti; an extra good specimen of Croton Maurice Rouvier, well coloured; a perfect plant of Platycerium grande, and a large example of Dieffenbachia illustris. In the still smaller class for fifteen similar plants, the 1st prize fell to the same firm again, no other exhibitor contesting against them. Here they had good Palms and other well-grown plants.

In a class for the finest Asparagus, the 1st prize was easily won by M. Gyselinck with a grand example of A. Sprengeri, the growths of which were fully 8 feet in length and of fine colours.

PALMS.

The Palms constitute one of the most exceptional features of th Ghent Show, one that we never have an opportunity o eeing in England in anything like the same manner in which they are displayed at Ghent. Many of them are noble plants of 20 feet and even 30 feet high, in the best condition possible. On this occasion the most noteworthy collection was shown by the Société Horticole Gantoise, Ghent, and it was awarded the 1st prize offered by the Comte de Kerchove de Denterghem, and one of the Gold Medals presented by the Royal Horticultural Society (England). Arranged in the permanent building in full view from the balcony it formed a magnificent exhibition. One of the most beautiful plants was the comparatively new Phœnix Roebelini, 7 to 8 feet high, showing this species to be one of the most elegant when a few years old, as it is also when quite young; Licuala grandis, a fine representative of one of the noblest genera was grand; Caryota urens at the back must have been upwards of 30 feet high; Latania rubra, Geonoma gracilis, Pinanga maculata, Phœnicophorum sechellarum, Astrocaryum mexicanum, Ceroxylon niveum, Rhapis humilis, R. flabelliformis, Kentia australis and K. Forstersiana, Livistona Hoogendorpi, L. rotundifolia, Thrinax elegans, and T. Chuco, were all splendidly represented. The 2nd prize was obtained by MM. de Smet Frères, Ledeberg, whose collection was distinguished by a magnificent plant of Phœnicophorum sechellarum, with leaves about 6 feet across.

In Class 170, a collection of twelve immense specimens, shown by M. F. Spae, Ghent, obtained 1st prize; another good collection in the same class came from M. Moens, Lede. M. E. Praet, of Mont St. Amand, won 1st prize for six specimens; and M. Pynaert, Ghent, 1st prize for twelve Palms that may be cultivated in the cold greenhouse.

A collection of twenty-five Palms, not popularly cultivated, shown by the Société Horticole Gantoise, was interesting; M. H. Millet-Richard having a good collection of fifteen specimens from the same point of view.

There were numerous classes for Palms, that brought together the most perfect examples obtainable of each popular variety; and in other classes were noticed several new Palms of great merit, some of which have been already described.

CYCADS.

Although the Cycads and Pandanus we see at Ghent remind us of some of the finest specimens in the Palm-house at Kew, there are not any new plants in this section that call for remark, if we except those already mentioned in Messrs. Sander's exhibit. The greatest honour, however, is deserved by several exhibitors for the splendid examples of cultivation they staged, remembering, too, that the removal of such plants for exhibition purposes is a stupendous work. The finest collection of all was one of fifteen very large specimens shown by M. De Ghellinck de Walle, of Wondelgem; and another good collection embracing eight specimens was shown by MM. De Smet Frères, M. L. Eeckhaute, St. Denis, Westrem, showed the best single specimen of Cycas revoluta. The premier collection of ten Pandanus was an excellent exhibit from M. Pynaert, Ghent; and M. Draps Dom, of Laeken, had the best single specimen of a Pandanus, showing P. utilis.

(To be continued.)

ROYAL HORTICULTURAL.

APRIL 21.—A crowded show : crowded as to exhibits, thronged with visitors, and this in spite of the Ghent Show. So great was the press that the visitors longed for the new Hall. We were told that the ground is cleared, the foundations prepared. Now it is for exhibitors and their friends to contribute the bricks and girders that will be needed; the largest contributions will be received with thanks, the smallest donations accepted with gratitude. Those who at first objected to the proposal to indulge in bricks and mortar now recognise that it was and is a pressing necessity; let them rise to the occasion. Where there was so much to be seen it is difficult to render a good account. The subsequent details will show that we have done our best. Here we may remark that the show was of the usual interesting character, with one great peculiarity—the show of Primroses and Auriculas made under the auspices of the National Auricula Society. This was an unusually fine display, and if the profane could not see much difference in essentials from the exhibits of former years, at least they could recognise that the "refinement," and those points which go to make up "quality," were splendidly illustrated.

Some of the members of the committee, including Lord REDESDALE, had hurried back from Ghent for this meeting, and were loud in their praises of Belgian hospitality, and warmly recognised the admirable way in which Lord REDESDALE had acted as representative of the British contingent. So fluent, and, as a Belgian paper before us says, so "literary" was his lordship's address, that some Belgians who thought they could speak French found that they were surpassed by an Englishman !

In the afternoon a paper was read by Mr. HEDGER WALLACE on "Horticultural Education in the Colonies," which elicited a brisk discussion from Messrs. G. Paul, G. Bunyard, A. Dean, and others.

Floral Committee.

Present : George Paul, Esq. (Chairman); and Messrs. C. T. Druery, J. Hudson, R. Dean, J. Green, J. W. Barr, J. F. McLeod, C. Dixon, C. R. Fielder, W. Bain, C. J. Salter, C. Jeffries, H. J. Cutbush, C. E. Pearson, H. J. Jones, R. W. Ker, W. G. Baker, H. Turner, C. Blick, W. Howe, and J. Jennings.

Before commencing the ordinary business, Mr. G. Paul (Chairman) proposed, and Mr. R. Dean seconded, a Vote of Condolence with the widow and family of Mr. A. F. Barron, whose death occurred at Chiswick on the 15th inst.

STOVE AND GREENHOUSE PLANTS.

Cinerarias were quite a feature of the meeting, the most meritorious collection coming from Messrs. SUTTON & SONS, of Reading. The plants, which were of the stellata section, were dwarf, bushy, and carried enormous heads of flowers, representing shades of purple, pink, blue, mauve, and white (Silver Flora Medal).

Messrs. JAS. CARTER, 237, High Holborn, W.C , also sent a group of Cinerarias of the cruenta and stellata types (Silver Banksian Medal).

From Messrs. JAS. VEITCH & SONS, 544, King's Road, Chelsea, came an admirable display of Cinerarias, consisting of two varieties only, viz., Feltham Beauty (C. Paris Blue × C. Tussilaginis), with purple flowers borne on strong branching heads; and C. Feltham Bouquet (C. polyantha × C. multiflora), a vigorous variety, with bold heads of purple flowers. Messrs. VEITCH also had Boronia Mollini, recently introduced from Central China (Vote of Thanks).

Messrs. HUGH LOW & Co , Bush Hill Park, Enfield, contributed a group of Schizanthus wisetonensis, raised from seed sown last autumn, and grown on in cold frames. The plants were about 18 inches high, of pyramidal habit, and carried a profusion of delicate-coloured flowers (Vote of Thanks).

Messrs. JOHN LAING & SONS, The Nurseries, Forest Hill, sent an excellent strain of Streptocarpus, remarkable for its healthy leafage, and large substantial variously coloured flowers which showed to advantage over the groundwork of Maidenhair Fern (Silver Banksian Medal).

Mr. H. B. MAY, Dyson's Lane, Upper Edmonton, exhibited single and double flowered zonal Pelargoniums in great variety; also Ferns, Japanese Hydrangeas, and a few plants of Rosa Polyantha Little Pet, covered with small white flowers, suitable for buttonholes (Vote of Thanks).

From Mr. JOHN RUSSELL, Kew Road, Richmond, came a group of the well-known Acalypha hispida, Caladium argyrites, and C. minus erubescens, two small-leaved species of great value in the stove, and for table decoration were also included (Vote of Thanks).

F. W. MOORE, Esq , V.M.H., Glasnevin, Dublin, sent Clianthus puniceus albus, a very strong growing and exceedingly floriferous variety of the well-known useful greenhouse climber, popularly called "Lobster claw." The specimen submitted was about 2 feet 6 ins. long, and bore great quantities of racemes, each containing from twelve to eighteen flowers, which are yellowish-green in the bud state, and white when fully expanded.

ROSES.

Roses were well shown, the premier exhibit being that from Mr. G. MOUNT, of the nurseries, Canterbury, who staged superb blooms of Ulrich Brunner, Mervcille de Lyon, Mrs. W. J. Grant, Mrs. John Laing, Catherine Mermet, &c., and as they were cut with long stems, and displayed verdant foliage, their decorative value was greatly enhanced. Two boxes of cut blooms were also shown (Silver-gilt Flora Medal).

Messrs. FRANK CANT & Co., Braiswick, Colchester, displayed a good number of varieties, most of which were shown in the usual manner in boxes. Two stands of Fortune's Yellow were quite a feature, and created much interest. A new H.P. variety named "Muriel," resembling Suzanne Marie Rodocanachi, was admired (Silver Flora Medal).

Mr. E. POTTEN, Cranbrook, Kent, showed two large plants of the new American climbing variety Dorothy Perkins, bearing great clusters of warm pink flowers rather bigger than those of Crimson Rambler. It is suitable for pillars, arches, and rustic bridges (Vote of Thanks).

Messrs. PAUL, The Old Nurseries, Cheshunt, exhibited a few cut flowers of choice varieties, such as Lady Moyra Beauclerc (H. T.), pink, and Frau Karl Druschke, perhaps the purest white grown.

MISCELLANEOUS.

Flowers of a new Tree Carnation named Gaiety, were also shown, but the Committee expressed a wish to see a plant. The flowers are large, fragrant, white ground freely streaked with red, and a non pod-splitter. Trusses of Rhododendron Lady Alice Fitzwilliam, were brought to show the variation in colour; the flowers are mostly white, but those of Messrs. PAUL, which had been grown in an unheated glasshouse, were cream coloured, the upper segments mottled with pink, and flushed with greenish yellow (Vote of Thanks).

HARDY SHRUBS.

Messrs. W. CUTBUSH & SON, Highgate, N., displayed in a semi-circular group on the floor, a handsome collection of forced deciduous shrubs, together with a few Richardias, Malmaison Carnations, &c.

Messrs. R. & G. CUTHBERT, Southgate, also contributed a large group of flowering shrubs, consisting principally of Ghent and mollis Azaleas, Cytisus scoparius Andreanus, laden with richly coloured flowers; Lilacs, and Wistarias (Silver Banksian Medal).

From ROBERT FOX, Esq., Grove Hill, Falmouth, came three trusses of a charming hybrid Rhododendron named Glory of Penjerrick, raised between R. Aucklandi and R. Thomsoni, both Himalayan species. The shapely flowers are borne in dense trusses, and are of a rich rosy-red colour with a lighter throat. Unfortunately, they had not travelled well, and were not seen at their best. The same exhibitor also contributed small sprays of Pittosporum eugenoides, with deep green, lanceolate, undulated leaves, and small, yellow, fragrant flowers, borne at the apex of the shoots. It is not hardy in the London district.

Mr. V. N. GAUNTLETT, Redruth, also sent a hybrid Rhododendron, the result of a cross between R. Aucklandi and R. arboreum. It is a very pretty flower, bearing some resemblance to R. Pink Pearl—undoubtedly the finest Rhododendron extant, but not so large or so deep in colour. The unopened buds are rich rose, and make a pleasing contrast to the delicate pink blossoms, whose upper segments are spotted with crimson.

From Messrs. J. CHEAL, Lowfield Nurseries, Crawley, came a group of cut sprays of hardy deciduous and evergreen shrubs (Vote of Thanks).

A small group of Acer palmatum, linearilobum, purpureum, gracile, Crippsii, came from Messrs. T. CRIPPS & SON, Tunbridge Wells. It is of slender growth, with very narrow deep purple leaves, said to assume a distinct bronzy hue with age. The committee asked to see it from the open ground.

HARDY ALPINE AND OTHER PLANTS.

To Messrs. JACKMAN & SON, of Woking, belongs the distinction of having the most meritorious exhibit of alpine plants and dwarf shrubs. Not only was the collection rich in material, but the arrangement left nothing to be desired. Some of the most striking examples were Polemonium confertum, a dainty little plant from the lower part of the Rocky Mountains with cream-white tube shaped flowers; Incarvillea grandiflora, recently certificated by the Floral Committee; Saxifragas, Lithospermum prostratum, Cypripedium macranthum, and C. pubescens; Spiræa arguta, bearing a wealth of small white flowers along the arching deep green shoots. A good clump of Gerbera Jamesoni was also shown (Silver Flora Medal).

Messrs. R. WALLACE, Kilnfield Gardens, Colchester, contributed a small group of bulbous and other hardy plants in pots and pans, consisting principally of Tulips, Daffodils, Erythroniums, and Iris bucharica (Vote of Thanks).

The Misses HOPKINS, Mere, Knutsford, showed a good selection of border Auriculas, Polyanthuses, Aubrietias, and a nice pan of Daisy "Alice," with lovely pink flowers (Vote of Thanks).

Messrs. T. S. WARE, Feltham, staged a grand collection of varieties of Primula Sieboldi, in large masses; also Androsace sarmentosa, Liliums, and Eremurus himalaicus (Silver Banksian Medal).

The GUILDFORD HARDY PLANT NURSERY, Millmead, Guildford, showed a prettily arranged group of alpine plants, and small shrubs suitable for the rock garden (Silver Banksian Medal).

Messrs. B. LADHAMS, Shirley Nurseries, Southampton, were represented by a miscellaneous collection of hardy flowers (Vote of Thanks).

From Messrs. PEED, Norwood Road, West Norwood, came a collection of alpine plants grown in pots, a large number of which were arranged in shallow boxes, plunged in Cocoanut-fibre (Vote of Thanks).

Mr. AMOS PERRY, Winchmore Hill, exhibited an interesting group of hardy plants (Bronze Banksian Medal).

Mrs. FAULKINER, Killucan Rectory, Co. Westmeath, Ireland, sent an ordinary strain of St. Brigid Anemones, which had suffered in transit.

Messrs. GILBERT, Dyke, Bourne, Lincs., also contributed Anemones.

Mr. G. REUTHE, Keston, Kent, showed a miscellaneous collection of spring flowers and alpine plants in pots.

Awards.

FIRST CLASS CERTIFICATE.

Pæonia lutea.—A tree Pæony with rather small rich yellow cup-shaped, sweet scented flowers, with a central cluster of yellow stamens. The pale green foliage is conspicuous for the prominent reddish coloured midribs and footstalks. From Mr. E. POTTEN, Camden Nurseries, Cranbrook, Kent.

AWARDS OF MERIT.

Lathyrus pubescens.—A distinct and beautiful perennial species, apparently of the easiest culture in a cool house. The mauve or light blue flowers are borne on long stems, and last in good condition for a long time. From Sir TREVOR-LAWRENCE, Bart., Burford, Dorking (gr., W. Bain).

Asperula suberosa.—This is a dainty little rock plant with small narrow greyish-green leaves arranged in whorls and small long-tubed delicate pink flowers, which appear in abundance towards the extremities of the slender growths. It is quite hardy, but unless given a raised, dry spot, is likely to suffer in very wet winters. From Messrs. WARE & Co , Feltham.

Rehmannia angulata.—This is a greenhouse perennial, introduced from Central China, and a useful flowering plant at this time of the year. The specimens exhibited were about 2 feet high, and displayed an abundance of large, rich Incarvillea-like flowers, spotted with crimson in the throat, on stiff stalks in the axils of deep green leaves. From Messrs. JAS. VEITCH & SONS Chelsea.

Iris spuria (variegated form).—A free growing Iris, with long, upright leaves, almost wholly yellow, which colour is said to be constant. It is likely to prove a good plant for lake and pond-side. From Messrs. BARR & SONS, 12, King Street, Covent Garden.

Rhododendron Duchess of Portland.—This perfectly hardy floriferous variety has for its parents R. barbatum and R. Handsworth Early White, and is remarkable for its compact, sturdy habit, deep green leaves, and handsome trusses of pure white flowers. From Messrs. FISHER, SON, & SIBRAY, Handsworth, Sheffield.

BOTANICAL CERTIFICATE.

Janckea radicans.—A dwarf and exceedingly rare plant, with rather fleshy deep green serrated leaves, set on long footstalks. The tiny white flowers appear on erect, branching spikes, 6 inches or so high; and not only are they distinct, but very beautiful, particularly so to the lover of plants of botanical interest. From R. H. BEAMISH, Esq , Ashbourne, Glounthaune, co. Cork, Ireland.

Narcissus Committee.

Present: H. B. May (Chairman); and G. S. Titheradge, P. R. Barr, W. Poupart, Walter Ware, R. W. Wallace, Jas. Walker, J. Boscawen, G. Reuthe, S. Eugene Bourne, Chas. T. Digby, R. Sydenham, A. N. Kingsmill, W. Goldring, J. T. Bennett Poë, J. D. Pearson, Chas. H. Curtis, Chas. MacMichael, and Miss E. Willmott.

There were several good groups before this Committee, and quite an array of novelties, several of which obtained an Award of Merit. The majority of the varieties have been reported on previous occasions, and we shall content ourselves with a brief summary at the present time.

NEW NARCISSUS.

The following received an Award of Merit.

Narcissus Lilian, a distinct novelty possessing, perhaps, the Leedsii form, but with a much longer and more cylindrical crown. The colour is sulphur and primrose.

Narcissus Resource, a glorified Nelsoni in form, with white, broadly imbricate segments, and a finely spreading crown.

Narcissus Adour, a rich yellow Ajax variety, nearly intermediate between maximus and N. spurius, and with not a little of the form as well as colour of these varieties.

Narcissus Moonstone.—If the reader will imagine a solitary Calathinus flower on a stem of near'y 18 ins., with a flower of larger size and much purity, a fair idea of this excellent novelty is before them. All the above were shown by Miss E. WILLMOTT, Warley Place, Essex.

Narcissus Branston.—This is a seedling from N. Barri conspicua, with all the stature and grace of the old variety. The colour is distinct, the perianth segments nearly white, and the crown of a deep orange-scarlet, with an orange-yellow tinted base. From A. S. LESLIE MELVILLE, Esq., Branston Hall, Lincoln.

Narcissus Cleopatra.—A showy yellow Ajax, resembling Emperor.

Narcissus Mrs. Geo. Barr.—A pure white Ajax, the flower slightly drooping, and of fine form and substance generally. This fine variety is following upon the heels of the superb Peter Barr, though it is not quite so large. These last were shown by Messrs. BARR & SONS, Covent Garden.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (Hon. Sec.), N. C. Cookson, H. Ballantine, W. Cobb, F. A. Rehder, J. Charlesworth, H. T. Pitt, W. A. Bilney, W. Boxall, E. Hill, W. H. Young, H. A. Tracy, W. H. White, J. W. Potter, H. Little, J. G. Fowler, J. Douglas, and F. Wellesley.

The exhibits of Orchids were fewer compared with several of the recent meetings, but some very interesting things were presented.

Messrs. JAS. VEITCH & SONS, Chelsea, showed the very beautiful Lælia × Digbyano-purpurata Duke of Connaught, a very large, bright, rose-tinted, fringed-lipped flower, allied to the fine L.D.-p. Edward VII., which recently caused some stir among Orchid cultivators. They also showed for the first time a small plant of a very remarkable hybrid Cypripedium, quite a new break, named C. × Little Gem, a title which, so far as the "little" is concerned, will be contradicted when it is strong enough to be fit for exhibition. The parentage is C. × Harrisianum superbum × C. × Baron Schroder, the former having for parents C. villosum and C. barbatum; and the latter, C. œnanthum superbum × Fairieanum. The C. œnanthum superbum brings in the influence of C. Harrisianum superbum a second time with C. insigne Chantini. The beautifully-formed little flower had a broadly ovate dorsal sepal, white, flushed with dark rose, and bearing feathered chocolate-purple lines; petals broad, tinted like the upper sepal, and bearing some chocolate markings; lip short, purplish-brown. It suggests, when developed, a very finely coloured hybrid of the C. × Priam class.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, secured a Silver Flora Medal for a small and choice group of Orchids, the best of which, Lælia-Cattleya × Dora magnifica, being the second of its batch to secure an Award of Merit (see Awards). Other good things were Lælio Cattleya × Mozart, with six flowers; L. C. × Digbyano purpurata, L.-C. × G. S. Ball, the pretty primrose tinted L.-C. × Mercia L.-C. × Highburyensis, Cattleya Schroderæ cœrulea, Odontoglossum × Harryano-triumphans, the pretty spotted Odontoglossum crispum "Lilian," and other Odontoglossums; and the fine Miltonia × Bleuana grandiflora rosea.

R. W. HUDSON, Esq., Danesfield, Marlow (gr., Mr. J. Gibson), was awarded a Silver Banksian Medal for a fine group of well-flowered Dendrobium Wardianum.

W. M. Low, Esq., Wellesbourne House, Wellesbourne (gr., Mr. W. H. Liney), received a Silver Banksian Medal for a profusely flowered group of the large-flowered Dendrobium nobile, Wellesbourne House variety.

Messrs. HUGH LOW & Co., Bush Hill Park, staged an effective group, which included fine Miltonia Roezli, and its white variety; a very large Odontoglossum Harryanum, several good O. Hallii, Cattleya intermedia nivea, Cypripedium Lawrenceanum, Dendrobiums, &c. (Silver Banksian Medal).

NORMAN C. COOKSON, Esq. (gr., Mr. H. J. Chapman), showed the finely-spotted Odontoglossum crispum "Jeanette."

FRANCIS WELLESLEY, Esq., Westfield (gr., Mr. Gilbert), showed Lælia × Iona nigrescens, with dark claret-tinted flowers.

J. COLMAN, Esq., Gatton Park (gr., Mr. W. P. Pound), showed Acineta Humboldti Colmani, profusely spotted with purple.

Captain C. C. HURST, Hinckley, showed Lælio-Cattleya × Hyeana magnifica, very good in size and colour.

H. T. PITT, Esq. (gr., Mr. Thurgood), sent Lycaste × Balliæ, Rosslyn variety.

Mr. J. W. MOORE, Cragg Royd Nurseries, Rawdon, sent two spotted Odontoglossum crispum.

R. I. MEASURES, Esq., Camberwell (gr., Mr. Smith), sent Cypripedium × Harri-exul, with flower formed like C. exul, but tinted with purple.

Awards.

FIRST-CLASS CERTIFICATE.

Dendrobium × *Venus grandiflorum.*—From NORMAN C. COOKSON, Esq. Flowers very large. Sepals and petals white, with purplish-rose on the outer halves. Lip maroon in the centre, banded with white and tipped with rose.

AWARD OF MERIT.

Lælio-Cattleya × *Dora magnifica* (L.-C. × Hippolyta Phœbe × C. Schroderæ).—Flowers of good size, several on a spike, of a clear salmon-tinted orange, with ruby-red markings on the front of the lip.

Fruit and Vegetable Committee.

Present: Messrs. G. Bunyard, chairman; J. Cheal, G. Woodward, W. Bates, A. Dean, J. Gibson, H. J. Wright, G. Kelf, C. J. A. Nix, F. Q. Lane, J. Willard, G. Norman, W. H. Divers, Jas. H. Veitch, G. Wythes, H. Somers Rivers, A. H. Pearson, and G. Reynolds.

The Secretary, Mr. S. T. WRIGHT, having read the remarkably brief minutes of the preceding meeting, the Chairman called on Mr. A. DEAN to make a resolution in reference to the late Mr. A. F. Barron. In doing so the speaker stated that whilst he had been a member of that body they had lost eminent members in the persons of Dr. Hogg, and Messrs. T. F. Rivers, Malcolm Dunn, Philip Crowley, and J. Saltmarsh, but none had excelled in knowledge of fruits and vegetables the late Mr. Barron, who had been for some years secretary to the committee, and also a valued and helpful member. The resolution, which expressed the committee's grave regret on hearing of Mr. Barron's death, and warmly acknowledged his valued service to horticulture, concluded by extreme sympathy with Mrs. Barron and family, and a desire that such expression be conveyed to them. Mr. G. Wythes, as the other representative of the Committee at the funeral, in well chosen words, seconded the resolution, which was carried in silence.

Of the exhibits, there came from Mr. R. Greaves, gr. to Lady HARGREAVES-BROWN, Brown Hall, Dorking, a box of five dozen of superb Royal Sovereign Strawberries, of perfect form, clear in flesh, and of even size (Silver Banksian Medal).

Four punnets each containing twenty fruits of the same variety of Strawberry were sent by Miss CROOKE, the clever and intelligent lady gardener, at Lady WARWICK'S Horticultural Hostel, Reading, very good fruits of medium size (Vote of Thanks).

Mr. J. Gibson, gr. to W. HUDSON, Esq., Great Marlow, exhibited a dish of fine Edwin Beckett Peas, well filled, grown in boxes under glass (Cultural Commendation).

From Messrs. SUTTON & SONS, Reading, came three dishes of Peas, of which the sample of Duke of Albany was very fine; the others also excellent being Early Giant and Seedling Marrowfat (Cultural Commendation).

Mr. G. WYTHES, gr., Syon House, Brentford, sent a bunch of small early Cabbages of his own selection named Early Gem. They were a long way superior to the sample plant of Ellam's Early sent, but the Committee thought the Early Gem sample was such as Ellam's Early, April First and Best, or similar varieties would give.

Mr. J. CROCK, gr., Forde Abbey, Chard, sent up a number of his Long Keeping Spanish Onion, the bulbs small, but very hard (Vote of Thanks).

From Mr. F. GREEN, Ely, Cambridge, came a single Cabbage-Lettuce as a seedling. It was of the curled type, such as are often seen in the American stocks tried at Chiswick.

Messrs. DAY & THELLAUD, St. Heliers, Jersey, had for inspection two large cases or cupboards containing small fruit lattice-crates. One case held forty-four of these crates, each one some 20 ins long, 12 ins. wide, and 4 inches deep; they were made with somewhat slight laths quite open, and with moveable lids. They were stated to be suitable for sending fruit long distances, and then transferred to shops, &c. The Committee were of opinion that for such purposes the crates were too fragile. It was resolved to ask that samples be sent, laden with fruit, to the great show at Chiswick in the autumn.

The Chairman introduced the subject of the Bill that Mr. Rankin, M.P., has now in Parliament, the object of which is to compel nurserymen to fumigate for the destruction of insect-life all trees, shrubs, &c., sent out to purchasers by them. He held that now, whilst nurserymen did all that was possible to keep their stocks clean, the real offenders were market growers, cottagers, farmers, and private persons, who neglected to take the commonest precautions to keep insect-pests in check. He said that to carry out the provisions of the Bill was impossible, and invited Mr. A. H. Pearson to explain them. This Mr. Pearson did lucidly.

Messrs. Cheal, Dean, Norman, Nix, and others spoke on the subject, and finally a resolution inviting the Council to express to the Board of Agriculture the strong opposition of the Society to the Bill, was unanimously carried.

The Council, it was stated, collating the views of the Scientific and Fruit Committees, as also of the nursery trade, later in the day agreed to do as desired.

NATIONAL AURICULA & PRIMULA.

APRIL 21.—"A very fine display," was the general verdict passed by the experts, as to the quality of the Auriculas shown at the Drill Hall, Buckingham Gate, on this occasion. The show Auriculas in particular were numerous and good, at a certain period of the season the plants came forward rapidly, owing to the weather being soft and mild; then came a time when cold winds prevailed, and then something like a check ensued, and efforts had to be put forward to get the plants into presentable condition. This was accomplished in great measure to the great gain of the exhibition, and all the leading experts were agreed that a very fine exhibition was provided. It was interesting to note that the number of plants of the show varieties was much larger than that of the alpine varieties. There was a keen competition in all the classes. One remarkable feature was the number of new varieties staged, some of which it is anticipated will become standard varieties. The alpines showed much refinement, but it was thought by some that the judges favoured too much long-stemmed varieties, as the sacrifice of proportion. Species and varieties of Primulas were largely shown and in good character, while it was gratifying to find some of the named gold-laced Polyanthus being shown in good character. No double Primroses were forthcoming in the class set apart for them, but in Mr. W. BEALE'S collection of Primroses and Polyanthus, the doubles were well represented, the crimson Madame de Pompadour in particular. Polyanthus of the fancy type, and also single Primroses were staged, but somewhat sparingly.

Show Auriculas.—There was a spirited competition with twelve varieties, and speculations were made as to whether Mr JAMES DOUGLAS or the Rev. F. D. HORNER would be 1st; while some favoured the finely-grown plants, with their noble trusses of bloom, shown by Mr. BATHGATE, Cranfield, Enfield, a new aspirant to Auricula honours, though there was room for suspicion they had been overgrown. The judges, three in number, represented the north, midlands, and south, and after examination they awarded the 1st prize to the Rev. F. D. HORNER, Kirby Lonsdale, who had generally medium-sized trusses, and among them one or two showing decided weakness. Of green edges, Mr. HORNER had Shirley Hibberd, the Rev. F. D. Horner, and Orient, a promising bright edged variety; grey edges, Orpheus and Beeswing; white edges, Minnie Horner and Memoir; and the following four selfs, Black Prince, Eurydice, Favourite, and Amiable, nearly all of them seedlings raised by the exhibitor. Mr. JAMES DOUGLAS, Great Bookham, came 2nd, he had of green edges, Gladiator, Abbé Liszt, and Mrs. Henwood: grey edges, Lancasbire Hero, George Lightbody, and Olympus;

white edges, Acme, The Miller (a very promising white edge), Marmion, and Magpie: and of selfs, a new and beautiful dark variety of fine character, unnamed. There were nine entries of six varieties—a record number; and no one need fear a decline of Auricula culture while so many enthusiasts are found ready for the fray; here, Mr. James Douglas was well ahead with green edge, Gladiator; grey edges, George Lightbody, Lancashire Hero, and Richard Headly; white edge, Mrs. Dodwell; and self, Mrs. Potts—a well-balanced set. Mr. J. T. Bennett-Poe Ashley Place, came 2nd, he had in good character green edge, Mrs. Henwood; grey edges, George Lightbody, Richard Headly, and William Brockbank; white edge, Acme; and self, Ruby.

There were eight competitors with four Auriculas. Mr. Purnell-Purnell, Streatham Hill, taking the 1st prize with green edges, Abraham Barker and Shirley Hibberd; white edge, Heather Bell; and self, Cleopatra. Mr. A. S. Hampton, Reading, had green edge variety Badcock, bright in appearance and promising; and grey edges, Richard Headly, George Lightbody, and George Rudd.

Pans of plants were numerously shown also. Mr. J. W. Bentley, Stakehill, Manchester, came in 1st with white edge Heather Bell, and self Mrs. Potts; Mr. Purnell-Purnell coming 2nd with green edge John Hannaford and white edge Heather Bell.

Then came the classes for single specimens, the awards going as follows:—green edges, 1st, Mr. W. Smith, Bishops Stortford, and also 2nd, all with Mrs. Henwood, an emphatic testimony to the high position taken by this variety; grey edges, 1st. Mr. F. A. Wellesley, with Richard Headley, and 2nd with George Lightbody; selfs, 1st, Mr. J. W. Bentley with Elsie, a promising dark variety; the Rev. F. D. Horner was 2nd with Favourite.

There were four collections of fifty Auriculas, not necessarily distinct. Mr. James Douglas taking the 1st prize with, green edges, Greenfinch, Achilles, Abraham Barker, John Hannaford, and Gladiator; grey edges, Olympus, George Lightbody, Ajax, and Col. Champneys, with its violet body colour; white edges, Venus, The Miller, Bellona, a refined variety of high promise, and Amy Robsart; and selfs, Lord of Lorne, Ruby, Gerard, Mrs. Potts, and Cleopatra. Mr. Purnell-Purnell came a good 2nd with standard varieties.

The class for six grey edges brought four competitors. Mr. J. Sargent was placed 1st with Lancashire Hero, Beauty, Marmion, Rachael (two), and George Lightbody; Mr. W. Beale was 2nd, having, differing from the foregoing, Richard Headly, Confidence, Dr. Horner, William Brockbank, and George Rudd.

In the class for maiden growers, who were required to show four varieties, Mr. J. H. Wilson, Handsworth, Birmingham, was 1st, having green edge Prince of Greens, and Rev. F. D. Horner; grey, George Lightbody; and self, Ruby. Mr. J. Steward, Milton Bridge, was 2nd.

Seedling Show Auriculas.—Two money prizes were offered for these, and both fell to the lot of the Rev. F. D. Horner; he took the 1st with Beatrice, a dark self, with somewhat narrow paste; and 2nd with Jet, a black self, with a good tube. Certificates of Merit follow the awards.

Premier Show Auricula.—This was found in a collection of twelve varieties shown in Class 1 by Mr. W. Beale, Hayes; it was green edge Mrs. Henwood, and had a truss of seven pips, all finely developed, a perfect example of this popular green-edged variety. Mr. Beale secured several prizes at the show, but he was prouder of possessing the premier flower than of all the rest of his honours.

Alpine Auriculas.

Four collections of twelve varieties were staged, the 1st prize falling to the lot of Mr. J. W. Bentley, whose flowers had much refinement. Of gold centres he had Toby, Mikado, Edith Bunthorn, and Attraction; cream and white centres, J. F. Kew, Coronation, Coronet, Miss Baker, Blue Bell, Estella, and Bonny Bell mainly seedlings raised by the exhibitor. Mr Jas. Douglas came 2nd, with golden centres, Rosy Morn, Valiant, Byron, Firefly, Duke of York, and Urania; white and cream centres, Thetis, Geo. H. Hartwidge, John Gilbert, Ganymede, Hilda, and J. F. Kew. Mr. W. Beale was 3rd.

There were ten competitors with six alpines, Mr. J. Douglas taking the 1st prize with strong plants of Rosy Morn, Firefly (probably the best alpine yet raised), Urania, and Mrs. Markham, gold centres; Thetis and Ganymede, white centres. 2nd, Mr. J. P Bennett-Poe, with gold centres, Ziska, Dean Hole, Urania, Friendship, and a seedling; white centre, Unique. 3rd, Mr. R. Holding.

With four alpines, Mr. J. Bennett-Poe gained the 1st prize, with Bella Ainslie, Urania, Dean Hole (very fine), golden centres; white centre, Edith. 2nd, Mr. J. W. Bentley, with gold centres, Sancho and Olivia; white centres, Olga, and Mrs. Lord. Mr. A. R. Brown was 3rd.

Single Specimens, Gold Centres.—1st, Mr. J. T. Bennett-Poe, with Duke of York; 2nd, Mr. F. W. Price, with Evelyn Phillips.

White centres.—1st, Mr. F. W. Bentley, with Veronica; 2nd, Mr. W. Beale, with Miss Barnett.

Seedling Alpines.—A few promising flowers were staged, but the two prizes offered fell to the lot of Mr. R. Holding, Birmingham, who was 1st with Mrs. Danks, gold centre, maroon, shading to a deep rosy-salmon—a highly-refined flower of excellent form; and 2nd, with Richard Dean, golden centre, having a black ground colour, shading to bright salmon-crimson; pip stout, and finely formed. These awards also carried Certificates of Merit.

Premier Alpine.—This was Mr. Holding's Mrs. Danks, described above.

Fancy Auriculas.

Mr. J. Douglas took the 1st prize with twelve varieties, and was the only exhibitor. It is time the money offered in this class was offered to some more worthy objects. Fancy Auriculas are nondescripts of doubtful character, and not at all likely to come into general cultivation.

Primula Species, &c.

There was no entry in the class for twelve specimens, but in that for six there were three entries. Mr. W. Beale was placed 1st with made up pans of such species as japonica, Sieboldi, verticillata and floribunda, to which were added an Auricula, and an intermediate form; Mr. Purnell Purnell came 2nd, also with made up specimens of denticulata, obconica, floribunda, &c.; and Mr. R. Dean was 3rd, showing single specimens only.

Mr. Beale also had the best group arranged in a shallow box—a very pleasing exhibit indeed, which included denticulata, obconica, marginata, viscosa, forms of intermedia, verticillata, frondosa, mollis. &c., with various show and alpine Auriculas; Mr Purnell-Purnell came 2nd, with a similar arrangement, nearly equal to Mr. Beale's; he had most of the species above mentioned, including P. kewensis, and various Auriculas.

Fancy Polyanthus.

A bright and effective dozen specimens won the 1st prize for Mr. P. D. Williams, St. Keverne, Cornwall; Messrs. W. J. Stokes & Son, nurserymen, Trowbridge, were 2nd, but their strain needs improvement.

Gold-laced.—With three specimens Mr. J. W. Bentley came 1st, having Trilby, a refined black ground, George IV.; and Middleton Favourite, red ground. Mr. R. Dean was 2nd with some promising seedlings.

The best single specimens came from Mr. Bentley; he was 1st with Mrs. Brownhill, and 2nd with Exile. Mr. R. Dean was 3rd with a seedling.

Single Primroses.—Mr. R. Dean was the only exhibitor, and took the 1st prize with plants showing high quality, though clearly past their best.

Group of Primroses and Polyanthus.—The only exhibitor was Mr. Beale; he tastefully arranged his plants on a table, with green moss about them. Conspicuous were such double Primroses as the crimson, white lilac-purple, yellow, platypetala, plena, &c., with blue and crimson single varieties.

In the way of miscellaneous exhibits, Mr. T. S. Ware, Ltd., Feltham, had a collection of the leading varieties of P. Sieboldi; Messrs. H. Cannell & Sons, large trays of varied-coloured Polyanthus; while the Misses K. and E. A. Hopkins, Mere Cottage, Knutsford, had a collection of Auriculas, including the pale yellow Alexandra, finely bloomed; a creamy-white variety, some named gold laced Polyanthuses, &c.

The Luncheon.

On the completion of the judging, the officers of the Society, exhibitors, and others, partook of luncheon at the Hotel Windsor, Dr. M. T. Masters, one of the Vice-Presidents, in the chair. In proposing success to the Society, Dr. Masters said that out of a large number of species included in the genus Primula, only a few were in cultivation and were capable of expansion. He thought the Auriculas of his boyhood were but little different to those cultivated in the present day, and recommended that other species from China and the Himalayas should have the same attention given to them as was afforded to the Auricula. Subsequent speakers called into question the opinion as to the florist's Auricula, and Mr. J. W. Bentley pointed out that a very good opportunity for comparing the older flowers with the newer ones was furnished in a collection containing some bygone flowers, staged by Mr. C. Turner, and he thought the newer varieties showed decided improvement. The health of the Chairman was drank with much cordiality despite his relapse into floricultural heresy.

Bletia Hyacinthina.—Mr. Alfred Unger, of L. Boehmer & Co., of Yokohama, sends us a photograph of the handsome terrestrial Orchid Bletia hyacinthina. He remarks that the plant is found perfectly hardy in Yokohama, in spite of severe frosts in winter, and it blooms freely in May. There are two varieties, a light rose one and a white one, the latter the better of the two. As the plant can be forced, it might prove useful for market purposes.

MARKETS.

COVENT GARDEN, April 23.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Cut Flowers, &c.—Average Wholesale Prices.

	s.d.	s.d.
Azaleas, per doz. bunches	2 0	4 0
— mollis, per bunch	1 0	—
Bouvardias, per dozen bunches	6 0	8 0
Callas, per dozen	4 0	6 0
Camellias, per dozen	2 0	3 0
Carnations, per bunch	1 0	3 0
Daffodils, p. doz. bunches	1 0	4 0
Eucharis	2 0	3 0
Ferns, Asparagus, per bunch	1 0	2 6
— French, per doz. bunches	0 4	0 6
— Maidenhair, doz. bunches	4 0	6 0
Gardenias, per box	1 6	3 0
Gypsophila, per bunch	0 6	—
Hyacinths, doz. bunches	2 0	6 0
Iris, per bunch	1 0	—
Lilac, White	2 0	4 0
— auratum, per bunch	3 0	4 0
— longiflorum, per bunch	4 0	7 0
Lily of the Valley, p. doz. bunches	4 0	9 0
Lily lancifolium, per bunch	2 6	3 0
Marguerites, yellow, per dozen bunches	2 0	2 6
Mignonette, doz.	2 0	3 0
Narcissus, dozen bunches	1 0	3 0
Orchids: Cattleya, dozen blooms	12 0	15 0
— Dendrobiums, per dozen	2 0	3 0
— Odontoglossums, dozen	2 0	4 0
Pelargoniums, zonal, dozen bunches	4 0	6 0
— White	3 0	6 0
Primroses, dozen bunches	0 6	1 0
Roses, Mermet	3 0	6 0
— various, bun.	1 0	4 0
— red, p. bunch	2 0	4 0
— white, bunch	1 0	2 0
— pink, bunch	2 0	5 0
Smilax, per dozen trails	1 6	2 6
Stocks, per dozen bunches	2 0	4 0
Tulips, all colours, per bunch	0 6	1 0
Violets, Parma, per bunch	1 6	2 0
Wallflowers, per dozen bunches	3 0	3 6

Plants in Pots, &c.—Average Wholesale Prices.

	s.d.	s.d.
Adiantums, doz.	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæs, doz.	9 0	18 0
Aspidistras, doz.	18 0	36 0
Aucubas, per doz.	4 0	8 0
Azaleas, each	2 0	4 0
Begonia Gloire de Lorraine	6 0	12 0
Callas, per dozen	4 0	8 0
Cinerarias, p. dz.	4 0	8 0
Crotons, per doz.	12 0	24 0
Cyclamens, p. doz.	6 0	18 0
Cytisus, per dozen	6 0	9 0
Daffodils, p. doz.	4 0	6 0
Deutzia	8 0	12 0
Dracænas, variety, dozen	12 0	48 0
Ericas, per dozen	8 0	18 0
Euonymus, vars., per dozen	4 0	6 0
Ferns in variety, per dozen	4 0	30 0
— Japanese Balls, each	1 6	—
Ficus elastica, doz.	9 0	24 0
Geraniums, pink, per dozen	4 0	8 0
Geraniums, white, per dozen	4 0	—
— scarlet, dozen	4 0	6 0
Hyacinths, p. doz.	6 0	10 0
Hydrangeas, doz.	8 0	24 0
Herbaceous and Perennial Plants in variety, box	1 0	2 0
Ivy Geraniums, per dozen	6 0	8 0
Lilium longiflorum, per doz.	12 0	21 0
Lilac, pots, each	2 0	3 6
Lily of the Valley, pots	8 0	10 0
Lycopodiums, dz.	4 0	5 0
Marguerites, doz.	6 0	12 0
Mignonette, doz	6 0	8 0
Orange-trees, each	3 0	7 6
Palms, var., each	3 0	20 0
Pelargoniums, Scarlet	4 0	8 0
Pteris tremula, dz.	4 0	8 0
— Wimsetti, doz.	4 0	8 0
Rose Trees, p. dz.	9 0	18 0
Solanums, p. doz.	6 0	8 0
Spiræas, per doz.	4 0	8 0

Vegetables.—Average Wholesale Prices.

	s.d.	s.d.
Artichokes, Globe, per dozen	1 6	2 0
— Jerusalem, p. sieve	0 9	1 0
Asparagus, sprue, per bundle	0 6	0 8
— Paris	1 0	5 0
— English, per bundle	3 6	4 0
Beans, dwarf, lb.	0 9	—
— broad, per flat	3 0	—
— Channel Is. lb.	0 9	—
— Madeira, bkt.	2 0	—
Beetroots, bushel	1 0	1 3
Cabbages, per bag	1 0	1 6
— per tally	3 0	5 0
Carrots, doz. bun.	1 6	2 0
— bag (washed).	1 6	2 6
Cauliflowers, per dozen	1 6	3 6
Celery, per dozen bundles	6 0	—
Chicory, per lb.	0 3	—
Cress, per dozen punnets	1 3	—
Cucumbers, doz.	2 0	3 0
Endive, per doz.	1 3	1 6
Garlic, per lb.	0 4	—
Horseradish, foreign, p. bunch	1 3	1 6
Leeks, per dozen bunches	0 9	1 0
Lettuces, Cabbage, per dozen	9 0	1 0
Lettuce, Cos, doz.	3 0	4 0
Mint, dozen bun.	2 0	3 0
Mushrooms, house, per lb.	1 0	—
Onions, per bag	6 6	7 0
— foreign, case	7 0	7 9
— green, p. doz.	2 0	—
— picklers, sieve	2 6	3 0
Parsley, per doz. bunches	1 0	1 6
— sieve	0 9	1 0
Parsnips, per bag	1 0	1 6
Peas, per flat	5 0	—
— frame, per lb.	0 9	0 10
Potatos, per ton	85 0	120 0
— New Teneriffe, per cwt.	10 0	14 0
— New, Kidney, Frame, p. lb.	0 3½	0 4
Radishes, per dozen bunches	0 4	1 6
Rhubarb, Yorks.	1 6	—
— outdoor	1 6	2 0
Salad, small, punnets, per doz.	1 3	—
Seakale, natural, doz. punnets	21 0	24 0
Shallots, per doz.	0 2	—
Spinach, p. bushel	2 0	—
Tomatos, Canary, deeps	2 0	4 6
— Channel Islands, per lb.	1 0	1 6
— English, new, per lb.	1 0	1 6
Turnips, p. dozen	1 6	2 0
— bags	1 6	2 0
— new, bunch	0 6	0 8
Vegetable - Marrows, per dozen	12 0	—
Watercress, per dozen bunches	0 6	—

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.		s.d.	s.d.
Apples, Californian, cases	10 0	11 0	Grapes, Almeria, per dozen lb.	4 0	6 0
— Australian, including Tasmanian, case	8 0	14 0	— Muscats, per lb.	8 0	—
Bananas, bunch	8 0	12 0	Lychees, packet	1 0	—
— loose, dozen	1 0	1 6	Melons, each	2 0	3 0
Cobnuts, per lb.	0 3	0 3½	Oranges, case	12 0	16 0
Figs, per dozen	3 0	8 0	— Tangierines, per 100	4 0	—
Grapes, Belgian, per lb.	2 0	3 0	Pines, each	3 0	4 0
— Hamburgh, A., per lb.	4 0	5 0	Strawberries, A., per lb.	3 0	4
— — B., per lb.	2 0	3 0	— B., per lb.	1 6	2

REMARKS.—Grape-fruits, per case, 15s.; Mangoes, per dozen, 4s.; Australian Pears fetch, per case, 10s. to 15s.; Gooseberries are now coming in from Sandwich and Cornwall; they are small. The price of Cucumbers is now easier; Seakale has advanced in price; foreign Asparagus is arriving in great variety at prices ranging from 1s. to 5s. per bundle; Egyptian Onions—the best of all Onions at this season—are now coming in, and when cooked they are white, very tender, and of excellent flavour. The very small bulbs make excellent pickles.

POTATOS.

Various samples, 40s. to 85s. per ton; Dunbars, red soil, 110s. to 12 s. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period April 12 to April 18, 1903. Height above sea-level 24 feet.

April 12 to April 18, 1903.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 12	N.W.	41·5	42·2	50·1	36·9	...	47·2	47·6	47·6	25·1
MON. 13	W.	40·1	37·2	47·4	33·2	...	45·9	47·5	47·6	23·9
TUES. 14	N.W.	41·7	36·2	48·3	30·8	0·06	44·7	47·0	47·7	18·3
WED. 15	N.W.	40·7	36·7	47·6	38·9	...	44·9	46·8	47·5	27·0
THU. 16	N.N.E.	39·7	35·0	45·6	28·0	0·01	44·1	46·5	47·5	14·8
FRI. 17	N.N.E.	39·2	34·0	46·1	29·5	...	43·2	46·2	47·3	15·6
SAT. 18	N.N.E.	39·7	35·2	50·3	29·0	...	42·8	45·8	47·2	17·3
MEANS	...	40 8	36·6	47·9	32·3	Tot 0·07	44·7	46·8	47·5	20·3

Remarks.—Fine, dry, cold windy weather, with sharp, frosty mornings. The hardy fruit crops have suffered terribly during the week, owing to the unusually severe frosts.

ANSWERS TO CORRESPONDENTS.

*** *On account of the extraordinary pressure on our space, several communications and reports of societies are unavoidably held over.*

CEDARS, 300 YEARS OLD, SEEDING: *G. C. S.* It is a common occurrence for Cedars of much less age to bear cones with seeds of vegetative power within them, and usually the cones increase in numbers as the trees increase in age. A prolific production of cones shows that the trees are losing their vigour through old age, exhaustion of the soil, or decay of the roots.

BOOKS: *Chas. O. L. P. A Traveller's Notes.* This book was published for private circulation. Apply to Messrs. J. Veitch & Sons, Ltd., Royal Exotic Nursery, King's Road, Chelsea, London, S.W.

CLOVER DESTRUCTION: *J. S. & Sons.* The Clover plants were destroyed by wireworm (Elater lineatus). When first received nothing could be seen in the soil, but after keeping the soil for a few days in the warm, about twenty wireworm grubs were hatched out. In fact, the soil was literally swarming with them. I have never seen so many wireworms in such a small portion of soil. One grub or maggot of the Turnip-fly beetle (Phyllotreta nemorum) was also found feeding on the decaying Clover-root. Application of superphosphate and salt might stay the evil somewhat, but if the sample of soil sent represents the whole field, I fear nothing will save the Clover. I would advise that a large dressing of gas-lime be applied, which will have the effect of killing both grubs and eggs. This might be ploughed in, and the land left fallow until the autumn, when 4 cwt. agricultural salt and 2 cwt. superphosphate per acre might be applied, and the land sown down to Oats. If gas-lime cannot be obtained, plough up the land and sow with Mustard, which may be fed off by sheep, or ploughed in as a green-manuring; then sow the salt and superphosphate as recommended above, and plant with Oats. In the spring of next year, if thought necessary, 1½ cwt. of nitrate of soda per acre might be applied as a top-dressing. *J. J. W.*

CORRECTION. Mr. A. D. Richardson writes:—"In the article in last week's issue on 'Colorado variety of the Douglas Fir,' 'lesser,' in line 17 from the bottom of the page in column 3, should be 'greater.' It looks somewhat paradoxical, of course, but it is nevertheless the case that it is recommended for some localities here on account of its greater hardiness."

CUCUMBER PLANTS DISEASED: *F. W. M.* Yes; it is leaf blotch. Spray at first on alternate days with a wineglassful of paraffin in a gallon of soapy water. This can be kept mixed by constant stirring or spraying into the vessel containing the mixture. It is very important that the under-surface of the leaves are well wetted. *G. M.*

DISFIGURED LEAVES: *R. V. S.*—The spots are caused by insect punctures. Use an insecticide.

EMPLOYMENT IN THE PUBLIC PARKS: *Parks.* The London County Council's Parks' Superintendents take on extra gardeners and labourers in the spring months, and you should make a personal application to one or other of the Superintendents. This likewise applies to the royal parks.

FIG FRUIT DISEASED: *J. E.* The fruit is attacked by a fungus, Cercospora Bolleana. It is found wherever Figs are grown in quantity out-of-doors, and mostly attacks the foliage. You might try preventive spraying with the Bordeaux Mixture or sulphide of potassium, at the rate of ½ oz. in a gallon of water; and even when an attack has begun these substances would arrest the spread of the disease. It was figured and described in the *Gardeners' Chronicle* for July 7, 1900, p. 5.

FIG-LEAVES DISEASED: *A. R. S.* Uredo fici is present on the Fig-leaves. Spray with permanganate of potash solution, and collect and burn affected foliage. The blotches on Calla leaves are "scorch," or "scald." No fungus or insect present. *G. M.*

LAWN TENNIS COURT: *D. R.*—Mr. Upcott Gill, *The Bazaar* Office, Drury Lane, London, W.C., will supply a little book on the formation and keeping of a tennis court, costing but a small sum.

MELON-ROOTS: *T. D. A.* The roots look as if they were gnawed by insect grubs, perhaps weevil-grubs. Examine the soil.

MUSHROOM BEDS: *W. S.*—The disease described and figured in the *Gardeners' Chronicle* is Xylaria vaporaria, and it has nothing to do with good spawn. The house must be well disinfected before Mushrooms are grown in it again. No help for the present crop.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. O.* Spiræa Thunbergi.—*P. S. A.* 1, Dendrobium crepidatum; 2, Dendrobium fimbriatum. — *Shrub.* 1, Andromeda spinulosa; 2, Skimmia Fortunei; 3, Andromeda floribunda; 4, Kerria japonica.—*W. D.* 1, Thujopsis nootkaensis; 2, Libocedrus chilensis; 3, Juniperus species; 4 and 5, Cupressus Lawsoniana; 6, Abies Pinsapo.—*E. M.* Shrivelled beyond recognition; kindly send another specimen.—"*Hortus.*" 1, Narcissus incomparabilis var. Cynosure; 2, Tropæolum polyphyllum; 3, Saxifraga cæspitosa; 4, Anemone hortensis var.; 5, no flower remained; 6, Cytisus præcox; 7, Mesembryanthemum sp., cannot say without flowers.—*Wm. Burnett.* 1, Aristotelia racemosa; 2, Coprosma sp.; 3, Corynocarpus lævigatus; 4, Sophora tetraptera; 5, Leucothoe Catesbaei; 6, Hymenocallis macrostephana.—*S.* Nepeta Glechoma (ground Ivy), British.—*W. F. G.* 1, Streptosolen Jamesoni; 2, Mimulus (Diplacus) glutinosus puniceus.—*W. G. S., Lancaster.* Bifrenaria Harrisoniæ, often called Lycaste in gardens.—*Zola.* Odontoglossum × Andersonianum.—*Laura.* 1, Oncidium sarcodes; 2, Oncidium Forbesii; 3, Oncidium Marshallianum; 4, Odontoglossum Wallisii; 5, Odontoglossum constrictum.—*A. W. S., Hemel.* 1, Dendrobium Devonianum; 2, Cœlogyne corymbosa (the white flower); 3, Dendrobium cariniferum.—*J. M.* Oncidium papilio (Butterfly Orchid), a very good form of it.—*W. H. B.* Skimmia japonica, and Photinia serrulata.—*W. H. G.* Orobanche major, a parasite.—*C. J. P.* 1, Hedera elegantissima; 2, H. marmorata; 3, H. gracilis; 4, H. digitata; 5, H. pedata; 6, H. palmata aurea.

REMOVING A SWARM OF BEES: *Pinkie.* The bees could remain as they are in the straw skep, and be allowed to work down into the bars, below which they will go in the course of time; or if a good stock in a bar-frame hive is required, it would be best to drive them out of the skep at once, and transfer them to the bar-frames; and any brood in the skep could be placed behind the frames to allow the young bees to hatch out, when the comb could be removed. Or you might let the skep swarm, and place them in the bar-frame, and allow the old stock to remain till about August or September, and then drive them out. If this should be done, the skep should be removed from the bar-frames and placed on a board or stand in the exact spot where the bar-frame is now standing. The autumn is generally the best season for driving bees out, but when no increase is desired it would be well to drive them forthwith.

ROSE-SHOOTS BROWNED AND DYING: *H. R.* Attacked by Glæospora rosarum, a parasitic fungus. Cut off and burn all diseased portions. Very probably the fungus comes from wild Roses growing in the district. *G. M.*

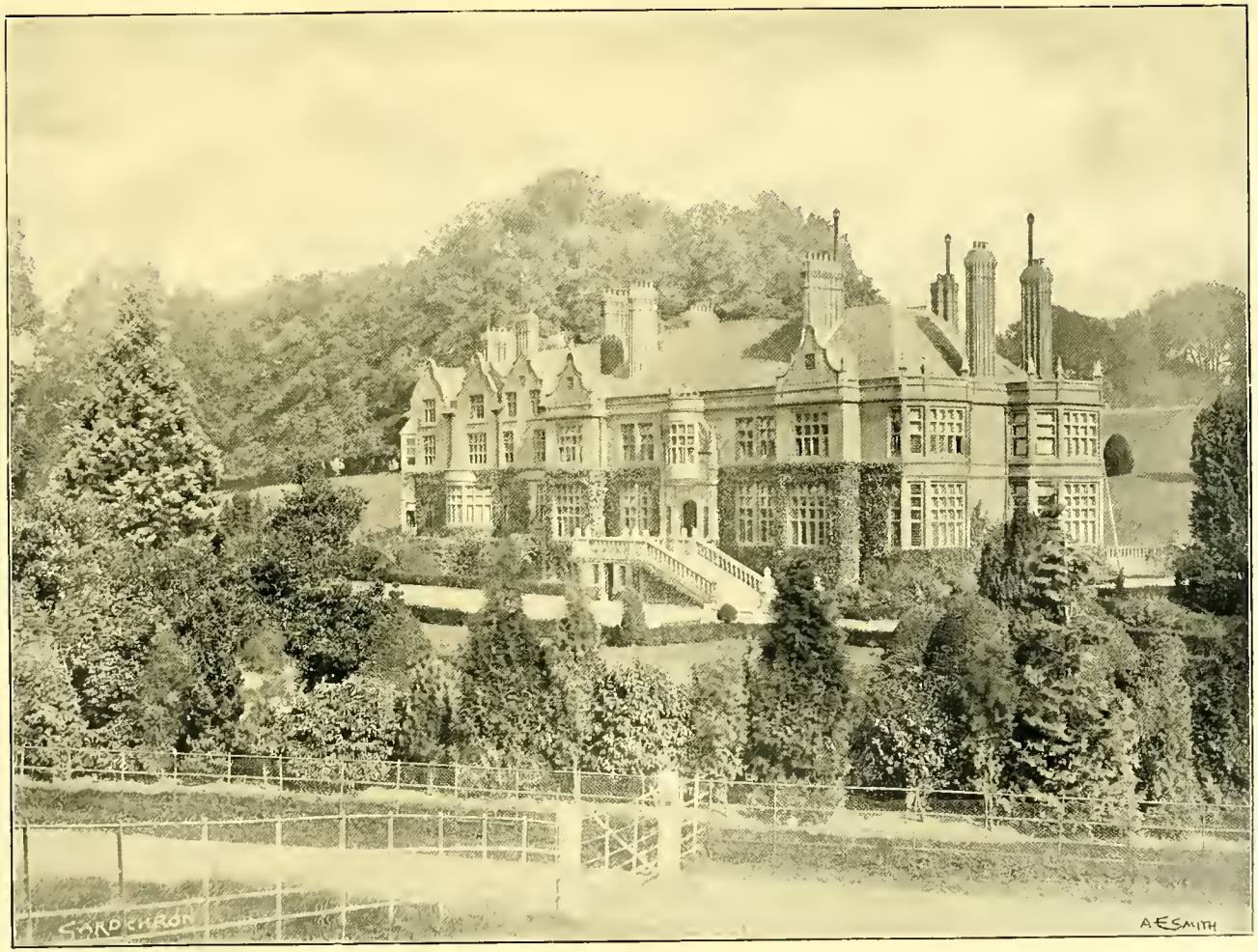
STELLATE-LEAVED PLANTS: *A. R. T.* Yes; there are numerous plants (such as certain Galiums) which have their leaves in whorls of four. Your best way of settling the discussion is to send us a contribution for the Royal Gardeners' Orphan Fund in return for the information we give.

TANGIER: *J. W. M.* We should think the prospects at Tangier for a nursery assistant are not good. At any rate, we decline the responsibility of advising you to go there in the present state of the country. You will not find it easy to learn Spanish, still less Arabic, as you purpose doing. The climate of Tangier is healthy, but very hot; and the nursery trade is not likely to be flourishing. Why not try some old British colony?

TOMATO DISEASED: *A. R. S.* The plant is attacked by Fusarium lycopersici, causing "sleeping disease." This is figured and described, *Gard. Chron.*, June 8, 1895.

VINE-LEAVES DISFIGURED: *Anxious One, H. C. D., Kingston.* The Vines are suffering from Bruniseur (browning). Remove all affected shoots and leaves, and dress with a fungicide. The materials composing the border have nothing to do with the malady.

COMMUNICATIONS RECEIVED.—Land—Lucien Laveur, Paris—H. Henkel, Darmstadt—G. B.—N. B.—A. Kostlar, Berlin—J. Comber (with thanks; see next week)—Carl Sprenger, Naples—A. Sims—C. J. P.—E. B.—J. R.—W. J. H.—J. B.—W. G. S.—Comte de Kerchove—J. E. P. (2s. enclosed)—A. K., Berlin—B. C., Shields—W. F. D. S.—L. Laveau—B. Wynne—J. M.—W. B. H., Cork.—E. Perkins—Aurelia—K.—A. Wray—F. Roemer—Secretary R.H.S.—T. H. C.—H. M.—G. G.—S. C.—E. C.—W. F.—R. M.—J. C. T.—H. A.—T. A. S.—E. A., Paris—A. B., La Mortola—G. W. F.—R. H. P.—L. L., Brussels—W. H. D.—A. C.—T. D.—Land.—W. W., Cowdray.—N. D. P.—J. S. U.—W. F.—E. A.—R. J.—G. T. J.—A. G.—H. T.



Marden Park, Surrey, the Residence of W. Greenwell, Esq.:
photo. by John Gregory.

THE
Gardeners' Chronicle

No. 853.—SATURDAY, MAY 2, 1903.

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WEEDS IN THE GARDEN.

A QUERY lately printed as to the best method of destroying Triticum repens would no doubt touch a sympathetic cord in the breast of not a few of your readers, for how many gardens, particularly those bearing the dignity of years, can be pointed to as absolutely free from some horrid weed or other? The introduction is so easy. One takes an offered opportunity to import fresh soil, and perhaps it is foul; or the master or mistress picks up some old-fashioned plant out of an equally old-fashioned garden, and with it introduces a colony of Gout-weed, Couch or wild Tares. Under certain conditions almost all of the section of weeds to which these belong, which on account of their vitality and vicious manner of life may be grouped together, are not difficult to destroy. But Strafford's motto, "Thorough," must be materialised. If the plants which harbour them cannot be sacrificed, it is impossible to effect their complete destruction. If, on the other hand, nothing is allowed to intervene, the way is open to effect a clearance. But each weed must be treated on its merits, or should I say demerits? I have known Ranunculus repens, for instance, prove very troublesome, especially among Strawberries; but anyone acquainted with the habit of the plant will find it not at all difficult to destroy, by simply cutting below the base of each growth. The common Nettle, Urtica dioica, and Lamium album, sometimes cause very much labour in carrying out methods to effect their destruction. I have known ground to be deeply trenched, and every bit of root found extracted, and through subsequent negligence, another colony produced from seeds left in the ground. Nettles, however, require no such drastic treatment as trenching, and a careful system of cutting the roots below the underground stems, removing these, and a little care in destroying seedlings as they appear, is all that is required to effect their eradication. Gout-weed (Ægopodium Podograria), on the other hand, can be easily destroyed by trenching deeply into the ground.

Not so many years ago a colony got established here in a large batch of German Lily of the Valley, that was planted to produce material for forcing. Various methods were tried to eliminate the offending vegetation, but in spite of everything, it continued to spread, till at last, having lifted the cleaner parts to force, and afterwards to burn, the remainder was trenched down 2 feet below the surface, the ground planted with Potatos, and nothing further was seen of the weed. In herbaceous borders it may be kept in check by repeatedly forking and cleaning the ground during the summer months, but unless the plants that harbour it are lifted and destroyed, it cannot be rooted completely out. I have two rather rare garden weeds, both of which were introduced with plants. The one, Viccia sepium, maintains its position, but does not spread unduly; the other, Convolvulus arvensis, so dreaded by kail-yard gardeners as to be called, perhaps not so elegantly as forcibly, "Diel's Guts," may be kept down by hoeing at short intervals. Eradication is hardly to be thought of.

Couch-grass, Twitch, or Quickens, as it is known in Scotland, can be destroyed by constantly cultivating the soil; by digging when free of a crop, when the stolons are removed; and by hoeing, when the ground is under crop. When established among the roots of other plants, the stolons are not difficult to remove if the host plant be lifted, and the roots washed in water, when the weed is more apparent, and therefore easy to remove. A few years ago my attention was drawn by a cottager to the very worst weed-infested garden I have ever seen. She had lately entered on possession, and had tried to eradicate the weed, but when I saw it, it was a question which was the more important crop, the Potato or the weed. My interest had been previously aroused from its name "Diel's Lingels," the only one she knew, and from the description, which did not tally with either Polygonum, Convolvulus, or Convolvulus arvensis, both of which I knew by that name. On inspection it proved to be Polygonum persicaria. In the same village, some of the little gardens were infested with Corn-mint, a weed, I was told, difficult to snub.

How weeds may be transported over a broad tract of country, received an illustration not very long ago, and which I hope may not be repeated. One afternoon I noted quite a light shower of feathery flakes floating across the garden. What they were was shown the succeeding year, when all over the garden seedling plants of Sonchus oleraceus made their apperance. Nor was our case singular, for before long I heard of the strange appearance of "soo-thistles" in other gardens, their introduction being wrapped in a mystery that was clear enough to me. I may say it took years to overcome the passing shower of that one afternoon. Other Composites, e.g., Dandelions and common Thistles, are carried abroad in the same manner; and such an innocent looking flowering plant as the common Nettle has a knack of spreading indefinitely if allowed to seed.

In gardens where the soil is light, and which requires much manure to preserve it in a fertile condition, the many annual weeds that attempt to gain a footing, cause, under the most favourable methods, no end of trouble to keep under, and if for a few weeks they are allowed to possess the land in peace, the trouble and labour are sevenfold intensified. Happily they are easy to destroy in a young state, and by the simple and inexpensive system of running a Dutch-hoe through the surface-soil directly weeds are seen to have germinated, very much labour in the future is saved. Sometimes, as last year, it seems impossible to carry this system into effect, and gardens in consequence become weedy to a distressing extent. Potatos for instance, were so late in appearing above ground, that a clothing of all kinds of garden annuals were established in their midst before it was thought the convenient opportunity had come when the hoe could be used with safety to the crop. The proper course to pursue, however, is to hoe, and to do so in every year before the haulm has reached the surface. By this means the weeds are destroyed as soon as they have germinated. It is indeed a commendable system to hoe ground periodically, whether weeds are in evidence or not. It is beneficial to crops, and, of course unless in weather that is constantly wet, the chance of weeds growing is reduced to a very great extent. Towards autumn, however, it is all but impossible to keep weeds under. In this garden the annual grass, Poa annua, springs up at all seasons, but most abundantly in autumn, when generally the weather conditions are all for the weed and against the gardener. Hoeing is no use whatever, and our only comfort consists in paring alleys with a spade, and with the same tool lightly pointing between the rows of growing crops. A little more time is consumed in the process than were a hoe used, but the work when performed is conclusively effective, and as a rule seldom requires repeating. The past winter was so open here, however, that in the case of ground under Daffodils, for instance, which had been dressed in autumn, it was imperative to destroy the annual weeds that had sprung up since. This was effectively done by means of forks, with which the soil was lightly turned over just as the leaves were peering above ground.

I suppose each one has his own method of using the Dutch-hoe, but as a rapid one of getting over a great extent of surface—that is, when weeds are so small as not to hinder operations—the market gardener's system of pushing the hoe in front is much to be preferred to the old one of walking backwards,

and which generally obtains in private gardens. That, of course, is best adapted to rows.

In block-hoeing, I like the men to take a breadth of 5 feet in, and hoe across on the square, pushing the implement the full extent each time, and overlapping just so much as to make certain no particle of ground is missed. This method ensures the ground being hoed all over equally once, and not some portions three or four times and others not at all, when men go about the work in a haphazard manner. It is at once the most rapid and efficient method I have tried. *R. P. Brotherston.*

SUNFLOWERS AND MALARIA.

YEARS ago, the Mississippi Valley was one of the most unhealthy valleys for yellow fever of all the low-lying districts of the Southern States. Men had ague every other day; they saturated themselves with quinine. The residents along the river banks were conspicuous for their ghastly, yellow looks, far worse than anything seen in Delagoa Bay in the worst season. The Mississippi River at certain seasons overflows, bringing down masses of black miasmic mud, depositing the same on the banks; then everybody goes down with yellow fever, which it is impossible to shake off. At last the cultivation of Sunflowers was adopted by law, with the result that the fever has been gradually conquered, and is now a scourge of the past. Owing to the profitable nature of Sunflower-cultivation, immense paper-mills have sprung up, utilising the fibre, &c., for many trade purposes.

The Sunflower-plant comes originally from Mexico; its reputation is world-wide. Its cultivation, when grown on a large scale, is much the same as that for mealies. By planting 5 lbs. weight of seed to the acre—broadcast or ridge, 18 cwt. of good clean seed will return in four months, with ordinary cultivation on average land; from this, 300 lbs. of oil can be pressed, or 18 per cent. of the weight harvested.

On average land the crop is 50 bushels to the acre, averaging 1 gallon of oil to each bushel yielded. In the fertile valleys around Barberton, from 15 to 20 per cent. can be added. Samples of seed-crowns were exhibited at Barberton in 1894 measured 21 inches across.

The oil yielded from the ripe Sunflower-seeds is of great commercial value: it is superior to Olive and Almond oils for table use; for frying fish it is unequalled. For burning in lamps, it lasts longer and gives a brighter light than any oil; for paintings (greens and blues) it is the most brilliant; in high-class scented soaps it is most valuable, on account of softness; it makes the best wax candles; as a drying oil it is equal to linseed; it is the best-known oil as a lubricant. A farmer can increase his income from £50 to £100 a year by growing Sunflowers in every odd nook and corner, and keeping bees. Here again it supplies the wax. The yellow flower is a fast dye. In manufacturing the most expensive woollen cloths, Sunflower-oil establishes the finest gloss.

The stalk produces fibre as fine as silk and as coarse as flax, as required, in large quantities. Since rags have become scarce, the fibre is used for paper-making. When the oil is extracted from the best seeds, the residue, together with the 80 per cent. above mentioned, is again crushed into a mash or oilcake, which sheep, pigs, pigeons, rabbits, poultry, and horses will fatten on rapidly. The green leaves when ripe make a fine fodder, if mixed with bran, for cows. Feeding fowls on bruised Sunflower-seed is said to increase their laying powers. The pith is used by surgeons, also the oil for demulcent and soothing purposes.

In *Tropical Cultivation*, Ceylon, 1889, we read: "In swampy places, where intermittent fevers are common, the cultivation of Sunflowers on a large scale has been found effectual in remedying, and in some cases altogether destroying, the fevers peculiar to marshy districts in tropical climes."

The warm, sheltered, sub-tropical climate of De Kaap Valley, with its much-maligned malarial reputation, is a most suitable field for this neglected produce, of the very first commercial importance to the Government, the people, and the country. *Journal of the Society of Arts.*

NEW OR NOTEWORTHY PLANTS.

SWAINSONA ECALLOSA, *Sprague.**

A PRETTY species approaching very nearly in habit and the colour of the flowers to Swainsona coronillæfoha, Salisb. (Hooker's *Paradisus Londinensis*, t. 28, and *Bot. Mag.*, t. 1725), but easily distinguished by the absence of plate-like calli on the vexillum; these are clearly shown in the figure in *Parad. Lond.* Equally important but less obvious differences are the presence of a terminal tuft of hairs on the upper (anterior) side of the style and the silkiness of the ovary.

The plant from which the above description is taken was sent to Kew by Messrs. Barr & Sons, who obtained it from the Minilya river in West Australia. It is interesting to note that S. coronillæfolia occurs in Queensland, N. S. Wales, and S. Australia, but not, so far as has been recorded, in W. Australia; it is probable that this plant and S. ecallosa are representative species in the respective regions which they occupy.

CULTURAL MEMORANDA.

MAURANDYA BARCLAYANA.

THIS is a pretty half-hardy perennial climber, or basket plant, useful for standing on the side or edge of central stages in the greenhouse or conservatory, the trailing shoots of deep violet flowers hanging over the edge of the staging or hanging-baskets. Seed may now be sown in light soil, covering lightly, placing in warmth of 55°. Prick off the seedlings to the number of three into 3-inch pots, and five plants into 5-inch ones. Apply water and grow on in a close, moist house or pit for a few weeks before placing. Keep close in a warm frame till established. *H. W. W.*

SPIRÆA FILIPENDULA.

This plant should be grown in quantity in the herbaceous border, where if given good treatment and not cabined and cramped too much, it looks its best. It throws up flower stems two feet in height; its flowers, which are white with a rosy tinge outside, make a nice show. The plant is readily increased from side shoots.

SPIRÆA ULMARIA,

when planted in moist land, usually flowers with great freedom, and the flower-spikes grow to a larger size than on plants which grow in dry soil. It is a plant deserving of care and attention, for besides its decorative worth as a flowering plant out-of-doors, its flower racemes are of use in the cut state. *H. Markham.*

* *Swainsona ecallosa.* — Herba erecta bipedalis pubescens; folia 3—5 poll. longa, 6—10 juga, foliolis elliptico-oblongis obtusis vel retusis interdum mucronulatis, ½—¾ poll. longis, 2—3½ lin. latis, utrinque pubescentibus. Stipulæ basi deltoideæ scariosæ, apice subulatæ setiformes, 1½ lin. longæ. Racemi axillares longepedunculati (pedunc. 4 poll.), 4—5 flori. Pedicelli calyce breviores (vix 2 lin. longi), ut calyces densius pubescentes Calyx 4 lin. longus, dentibus tubo paullo brevioribus lanceolatis acutis. Vexillum ecallosum, 7—8 lin. diametro, alas multo superans, ungue lato tenui. Carina lata obtusa. Antheræ oblongæ, ½ lin. longæ. Ovarium sericeum 5 lin. longum, stylo subulato, apice supra barbato. Legumen non vidi.

BOOK NOTICE.

SHAKESPEARE'S GARDEN. By (Rev.) J. Harvey Bloom. (Methuen & Co., Essex Street, W.C.)

THE original edition of Gerard's *Herbal*, published in 1597, was issued when Shakespeare was in his thirty-fourth year. It is no wild surmise, then, to suppose that the poet may have refreshed his memory and gathered many a hint from the pages of his contemporary. At any rate, anyone who desires to know what the plants were which were cultivated in Shakespeare's time has but to turn to Gerard's big folio, and there he will find them enumerated, and not a few figured.

Gerard describes the Potato, though it must have been but very recently introduced in his time, and Shakespeare has at least two references to it. Gerard also cultivated the Indian Tobacco (Nicotiana), likewise then of recent introduction; but, strange to say, there is no reference to pipes for smoking nor to Tobacco in any of Shakespeare's plays—at least, neither word finds a place in Mrs. Cowden Clark's *Concordance*.

Gerard devotes over two pages to an enumeration of the "vertues" of tobacco, but although he makes mention of the dried leaves as "taken in a pipe, set on fire and suckt into the stomacke and thrust foorth again at the nostrils," it is only as a medicament, and not as a solace. Prior to the issue of the *Herbal*, Gerard had published a "Catalogus" of the plants growing in his garden, and this, according to Mr. Daydon Jackson who edited a reprint of it, was the very first professedly complete catalogue of any one garden, public or private, ever published. De Lobel testifies that he saw the majority of the plants in Gerard's garden, and his testimony is the more important inasmuch as Gerard was not very scrupulous, and De Lobel afterwards reproached him for pilfering without acknowledgment. In any case, it is clear that any student desirous of ascertaining what were the plants in cultivation in the time of Shakespeare, can readily get the information he requires from Gerard's catalogue. In our own times we have had the delightful Plant-lore of Shakespeare, from the pen of Canon Ellacombe, the second part of which is devoted to "Garden-craft."

The author of the present book treats his subject rather differently, though naturally the details are the same. Mr. Bloom (auspicious name), arranges the plants according to the month in which they produce their flowers, beginning with April. The flower that commemorates the death of Adonis—

> "The purple flower . . . . chequered with white
> Resembling well his pale cheeks and the blood,
> Which in round drops upon their whiteness stood,"

might well have been the Fritillary. Anyway, the "Pulsatilla," which our author by an obvious slip describes as "delicate white," meaning, probably, A. nemorosa, hardly satisfies the requirements of the case.

The following note can scarcely be described as a mere slip, it is botanically more serious. Speaking of the "elves which for fear creep into acorn cups," the author tells us in a footnote that "these cups are technically glans, a word applied to fruits, in which three layers are lignified like the acorn and the nut."

But we do not expect to learn botany from such a work as this. What we do expect is to revive old associations, to revel in the delights which Shakespeare's text affords, and to wander with him either—

> "In a garden circummured with brick,"

> "Or by a bank, whereon the wild thyme blows,
> Where Oxlips and the nodding Violet grows."

The book before us fulfills these conditions, and the reader will be proportionately grateful.

ODONTOGLOSSUM CRISPUM "PERSIMMON."

Our illustration (fig. 112) represents a flower of this extraordinarily fine form of Odontoglossum crispum, for which its possessor, H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), received a First-class Certificate at the Royal Horticultural Society, April 7, this year. Mr. Pitt's collection is rich in rare Odontoglossums, and this one, although not so richly marked as O. crispum Pittianum, is well worthy to rank with the best. As will be seen, it is of fine form, and its flower, drawn by our artist from measurement, is of the largest of its section. The flowers are white, tinted with purple at the back, the surface of each segment having clusters of rich reddish-purple blotches, the crest of the lip being yellow, marked with red-brown.

MARKET GARDENING.

SOWING SEEDS OF TOMATOS.

This crop usually follows Cucumbers, and is now receiving attention, and I was interested to note the care bestowed on this operation. The method usually adopted is to sow in shallow trays of soil that received water before the seed is sown. The seeds are put in regularly at about 1 inch apart, a method of sowing that is worth copying, even if it does take a little longer time to get through. By carrying out the sowing in this manner, the seedlings acquire strength from the start, which is continued when they are potted, which inflicts less check to the young seedlings.

Possible Strong Points in favour of Growing Cucumbers and Tomatos.

The latter take two months from the time of sowing to planting-out, whilst Cucumber-plants are raised in a month. Tomatos, from planting to fruit-cutting, take two months, Cucumbers one month.

I saw a span-roofed house, 100 feet long, in which Cucumber-plants were set out on March 1, from which fruits were cut on April 2; and in two cuttings taken this week, fifty dozens of fine fruit were cut. Cucumbers fetch very low prices in the market, in consequence of there being not much demand for them, and there will be no advance in price till the weather becomes warmer. Tomatos are not a great catch in the market just now, for either the Worthing or Guernsey growers.

Souvenir de la Malmaison Carnation "Nell Gwynne."

At Messrs. Wm. Cutbush's nursery at Finchley, I observed some fine blooms of the above pure white variety (the only white flower of its class). The Carnation grower informed me that the only fault the variety has is its running to flower without making any growth; and in order to get a stock of it the old plants are cut down at mid-season, and the resulting side-shoots are taken as pipings. When this variety is seen in bulk, the plants furnished with prominent buds and blooms, there is no mistaking it. The flowers being fringed at the edges, it might pass at a distance for a large Tree-Carnation.

Variegation in the Foliage of Carnations.

The leaf markings in a plant I observed recently in a pair of Souvenir de la Malmaison Carnation, Lady Grimston, were so fine, as almost to equal in beauty those of a Draccena. I heard, however, that the leaves do not retain the variegation when propagated. The blooms are normal in colour. I remarked among border varieties good examples of these stripes in the leaves of the variety Cecilia. This abnormality in the foliage is supposed to be due to weakness in the constitution of the plant, but in the cases cited above the plants were very vigorous. *Stephen Castle.*

THE FERNERY.

NEPHROLEPIS EXALTATA var. PIERSONI.

A year or two ago Mr. Roupell showed me a number of fronds of Nephrolepis exaltata, in which the usually simple pinnæ were divided again into stipitate pinnules. This character was so thorough, that it formed, in my opinion, an extremely promising break in the direction of such finely-divided plumose forms as we find in our best Polystichum angulare varieties. The fronds in question were recently exhibited by me at the Scientific Committee of the Royal Horticultural Society, but I gather from Mr. Roupell that the plant was either lost sight of by him, or reverted to the normal.

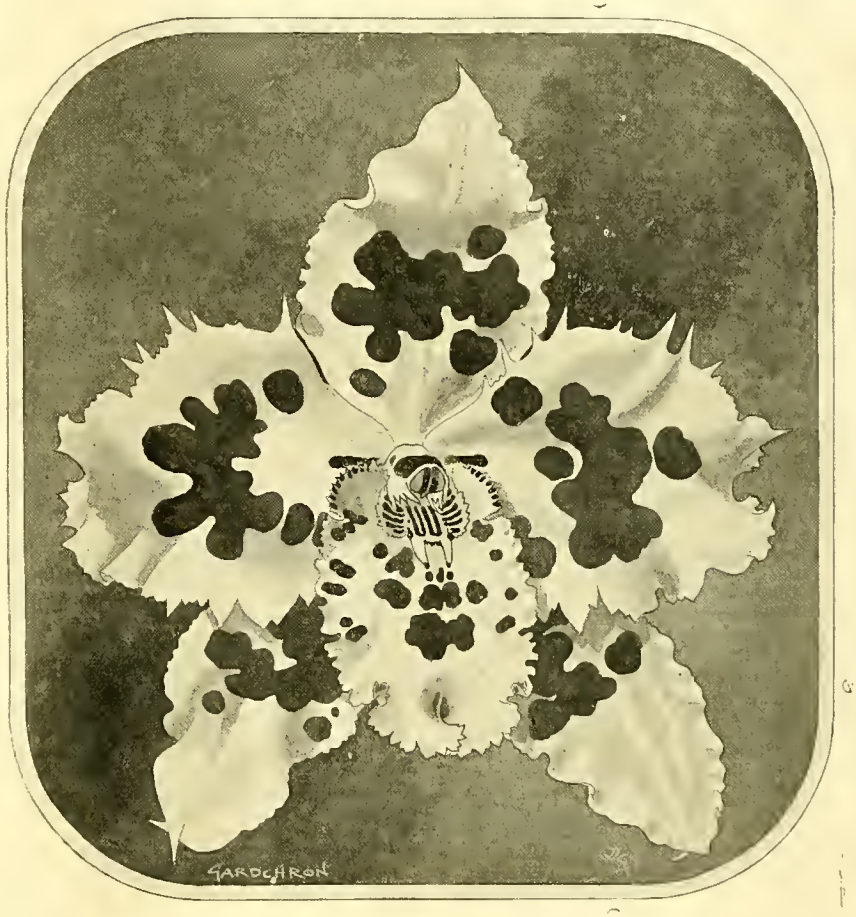

Fig. 112.—Odontoglossum crispum var. "Persimmon": real size.

In *American Gardening* of March 8, there are reproduced two very fine photos of fronds of a new variety, as named above, raised by Mr. F. R. Pierson, of Tarrytown, N.J., which seems to have originated about the same time, but is a distinctly finer form; the normally narrow frond of the species measuring in the variety over 7 inches in width, and being furnished with pinnæ, or secondary divisions, about 2 inches wide, i.e., fully as wide as a normal frond. The habit is also denser, and hence the frond is beautifully imbricate, and the inner divisions close set and crispy, the *ensemble* being of an extremely ornate type, which must render a plant a very handsome object indeed, the usually stiff habit of the species being replaced by one of outward curving, due to the weight of the frondage.

The descriptive article accompanying the photos is a trifle vague as regards origin, since, although it states that three years ago a plant was noticed "which displayed a tendency to a subdivision of the base of the frond," it goes on to say that "the specimen was isolated, watched, and propagated from; and gradually the new character became more strongly marked, until the whole of the pinnæ showed it."

This, it will be seen, leaves a doubt as to whether the improvement was arrived at by selection from sporelings obtained from the first plant cited, or by selection from the stoloniferous plants by which this species is usually propagated. In any case we have here, undoubtedly, one of those marvellous breaks, which are hardly likely to stop at this stage, if cultural selection be continued by sowing of the spores, instead of the grower being content with the easier propagation by stolons. The remarkably dense and foliose character of the variety is fairly sure to be correlated with some degree of barrenness as regards spores, but it may be well to note that in the parallel cases of Polystichum, although a superficial glance may fail to detect sporangia, a good lens may detect them, not as sori but singly. Already in the same genus we have one fine plumose variety, N. rufescens tripinnatifida, which, however, varies in different lines to this one, being cut like our Welsh Polypody, while N. e. Piersoni is, apart from its dense and imbricate character, a sport with a thorough secondary division, which, judging from parallel cases in British Ferns, may quite well go one or even two steps further, each one adding greatly to the delicacy and beauty of the plant. It is to be hoped that so fine a Fern will not be long in making its appearance on this side of the Atlantic.

Another word as to origin: it appears to have arisen from a form of N. exaltata, known in the States as the Boston Fern, a variety with which we are not familiar, but which, clearly from the context, is not abnormally divided in any way so as to constitute an intermediate step between normal aud bipinnate. *Chas. T. Druery, F.L.S., V.M.H.*

PEDUNCULATE AND SESSILE OAKS.

I AM quite open to conviction on this subject, but Prof. Fisher's statements are unconvincing in the face of what one knows. He asks me to go into particulars about rocks, depth, condition of the soil, gradients, aspects, &c., at Windermere, but I would first ask him to let us have the correct facts about his own cases. In his first letter on this subject, the Oaks in question at Chatsworth grew on the limestone, and now they have shifted on to the millstone grit,—a very different formation. What is even more remarkable, the millstone-grit hills where the Oaks grow, 700 to 900 feet above the sea, are, according to Mr. Robertson, covered with a light sandy soil superimposed on the millstone grit. I know the millstone grit very well. My house is high up on the same formation in the same district not far from Chatsworth, but a light sandy soil in such spots would, I think, excite the curiosity of geologists. There is no such combination so far as I know, or have seen.

In the Lake District which I spoke of, the Oaks were mostly in the valley. There is quite a park of them, and I never saw Oaks with such dark green, healthy foliage. They may not all be the sessiliflora variety, but all I saw except one tree, I think, were. Gradients and rocks and aspects do not matter much where saturation is the normal condition, and where rain falls some 200 days in the year.

I can believe that the Spessart French foresters, mentioned by Mr. Fisher, may have secured a race of sessile Oaks by selection, and never allowing pedunculate acorns to be sown; but that has nothing to do with the case. I go by the Oaks in Britain grown under more natural conditions, and I contend that the extreme forms, and all the forms between these, grow equally well under the same conditions, for I have seen them in many parts of England and Scotland. I never myself tried to see if the extreme forms came true from seed, but I believe I stated in your pages in 1900 that I had seen quarters of Oak seedlings in nurseries, said to have been carefully selected from the pedunculate variety, in which hardly any two trees were alike in foliage, and my experience has been much the same in mature woods. If Mr. Fisher supposes that the leaves are more constant in shape than the acorns, he is mistaken; and I once sent you a batch of leaves in proof of that.

As to Mr. Robertson's statements, he no doubt writes in good faith; but will he say whether or no he picked out his 600 pedunculates himself, or did his assistant do that? and did he pick them out by their acorns? He does not say he did so.

A very pertinent question comes in here. Mr. Fisher recognises only the two extreme forms; he calls the intermediate forms hybrids. Now, I ask Mr. Robertson, were all the 600 trees the extreme form of pedunculata, or did they consist of that and the intermediate forms? If, as he has suggested, the trees in his wood consisted of the two extreme forms only, I will undertake to say that there is not another wood in Yorkshire or Derbyshire of which the same thing can be said. On the other hand, if the wood consists of the extreme and intermediate forms, as I strongly suspect it does, like other woods in the neighbourhood, it cannot corroborate Mr. Fisher's views. Mr. Robertson seems rather in a hurry to drop the discussion after having made statements that certainly want corroboration. As to the climate and rainfall of Derbyshire, my authority is the *Encyclopædia Britannica*. Mr. Robertson's statement as to rainfall is misleading. Buxton in 900 feet above the sea, and so is the situation of the Oaks at Chatsworth, or thereabout, according to his own figures; and the rainfall will, no doubt, be the same as at Buxton —42 to 56 inches. The rainfall at Chatsworth House, low down by the river, is no criterion, as it is found there is always most rain on the uplands of Derbyshire. The Sheffield reservoirs' rainfall in the hills between Sheffield and Chatsworth prove this very distinctly every season.

Then, according to Mr. Fisher, the Chatsworth Oaks are 100 years of age; but I should say they are nearer 150 years. They have, at least, hardly altered perceptibly for thirty-seven years to my knowledge, and if they are not big that must be due to the elevations. It is admitted also that the trees have been stag-headed only for several years, and they must therefore have been growing quite healthily during nearly the whole of their time; whereas, according to Mr. Fisher's theory, they should have dwindled from the beginning.

I consider the Chatsworth example just about as bad as it could be. Both soil and climate are cool and moist all the year, and it is hardly possible that the soil anywhere near Chatsworth could become so dry as to kill any Oak or any other forest tree. There are numbers of stag-headed trees in this district, and in Derbyshire, where the soil has almost always been in excess of the wants of trees.

I knew Mr. Speed, the late head gardener at Chatsworth, well, and he often told me that his chief trouble in the gardens there was the cool summers and the late frosts; so much so, that crops of vegetables like French Beans were very difficult to grow.

In reference to the second paragraph of Mr. Fisher's last letter, I would say that I recognise no difference between a wet climate and a thoroughly moist soil. What I contend is, that none of the varieties of the Oak will thrive in a waterlogged soil.

In paragraph 4, Mr. Fisher says:—"For the pedunculate Oak to thrive, there must be sufficient clay in the soil to retain abundance of moisture during the growing season near its roots." If he will go to Lynford Hall, near Brandon, Norfolk, he will see the pedunculate Oak of magnificent dimensions growing in a sandy soil in which there is not a particle of clay; and I have no doubt Mr. Wood, timber merchant of Brandon, will show him a wood-yard full of gigantic Oak-trunks that have come off such land.

Another important point is this:—What is the prevailing form of the typical British Oak tested by its acorns? My impression is that fig. 61 of Mr. Fisher's, September 22, 1900, represents the extreme, but not the prevaling form of pedunculata; and his fig. 62, of sessiliflora, may be regarded in a similar light. According to my observations, the middle, short-stalked form, halfway between the two, is the commonest. Mr. C. Pierpont Johnson, who writes the article on Oaks in the *Encyclopædia Britannica*, says that though the extreme forms are very dissimilar, innumerable modifications are found between them, and it is more convenient to regard them as at most sub-species of Q. robur. His figure of pedunculata represents a very common form, but the foot-stalk is rather too long. It is suggestive that the figures of pedunculata given by different writers vary considerably. Mr. Fisher's fig. 61, Johnson's fig. 2, and the figure in Brown's *Forester* (Nisbet), do not resemble each other. There can hardly be a stronger argument in favour of a common degree of moisture in the soil, and similar conditions for both the extreme and intermediate forms than their multiplicity. If Mr. Fisher's reasonings about moisture and evaporation from the leaves, &c., be correct, it follows that we should need as many different soils, and degrees of moisture, as there are different forms of Oak, a thing too absurd from a practical point of view. We ought also to be able to grade the trees, as regards their health and vigour, in every wood according to the length of the footstalks of the acorns and leaves. If one of the extreme forms die under conditions necessary for the existence of the other extreme, our mixed Oak woods ought to show trees in every stage from health to debility, but they do not. If there be one indisputable fact in practical forestry, it is that the tallest, finest, and most valuable Oaks of all the forms are found together in glens and gullies where the soil is deepest and moistest, but not sodden; while the short and inferior trees are found on the dry knolls and uplands.

With regard to the acorns picked up at Chatsworth in 1900, the figures 61 and 62 themselves prove that I was correct in stating that at the season the acorns would either be fully swelled or abortions; both are seen on fig. 61, which shows one full acorn and one abortive acorn of the same size and shape as those on fig. 62 (sessiliflora), on which they are all abortive. A good example of a fully-grown sessiliflora acorn is seen in Nisbet's edition of *Brown's Forester*. The curious thing is, that anybody should ever mistake the one for the other. *J. Simpson.*

HOME CORRESPONDENCE.

WINTER TOMATOS.—In reply to your correspondent "Pinkie's" enquiry in a previous issue, I may inform him that the best winter-fruiting Tomato grown here is Ham Green. For last winter's plants the seeds were sown in the middle of July, the seedlings potted into 3-inch and afterwards 6-inch pots, and grown-on in a warm, low pit, where they received an abundance of air at all times. In October they were potted into 10-inch pots in a rich loamy compost, and placed around the sides of a span-roofed house, trained to the trellis-wires as cordons, and afforded a night temperature of 55°, with 10° to 15° more by day. Ventilation was applied on every favourable occasion, the flowers pollinated daily, and a moderately dry atmosphere maintained at all times. Treated in this manner, Tomatos were fit for use right through the winter months, and the plants are now ripening a nice lot of fruit. *T. H. C.*

HORTICULTURAL EDUCATION.—In the discussion which followed the reading of Mr. Wallace's paper, at the last Drill Hall meeting of the Royal Horticultural Society, Mr. Bunyard made some rather damaging remarks anent the horticultural training and work of students generally, and more particularly referring to one that had passed through the college at Swanley. With reference to the present training being of a too technical character, I would say that two-thirds of the student's working day is devoted to practical work, not in a work-as-you-like fashion, but in a thoroughly earnest and practical manner. That a certain amount of scientific training is of advantage, cannot be denied; and a thorough grounding in botany, chemistry, and rural economy accompanies practical work. With the latter, students have all the advantages of a private place, in addition to the system of work as carried out in the best market gardens. For the former, a good block of plant houses are provided, besides flower and walled in kitchen gardens. On the market side, Grapes, Peaches and other fruits are cultivated, besides flowers and vegetables, with extensive outdoor vegetable quarters and large fruit plantations. It is of course well known that a two years' course of training will not make a gardener, or a market-grower, but it will provide a solid foundation, as the scientific aud practical training combined must be of great assistance in later work. *C. Herrin, Hort. College, Swanley.*

BLUE HYDRANGEA.—We have the Blue Hydrangea growing in the vinery. My gardener tells me it came as a cutting from a neighbour's garden, with whom it always produced creamy-white flowers (he calls it Dr. Hogg). He gives it no special treatment, just the ordinary garden soil and leaf-mould potted with it. The suggestion in your issue that the colour is dependent on the nature of the soil seems the probable explanation, as I am upon clay, whilst my neighbour is upon sandy rock. We have also the pink Hydrangea growing in the open, and this shows a considerable tendency to blue, apparently depending upon hot sunshine. *Arthur G. Lupton, Springwood, Roundhay, Leeds.*

SETTING OF CANON HALL MUSCAT GRAPES.—This rather perplexing variety with many growers is now beiug dry-set with a brush or Pampas-grass plume. Very favourable results are so far this season to be seen in gardens, and dry weather and bright sun will make sure setting of those coming into bloom. One successful grower informs me that he keeps the house as dry as possible by day, and fertilising the bloonis before 2 o'clock P.M., then damping down (a practice he thinks much of), but he does

not close the vinery until later. I also noted that most of the bunches were "pointed up," but these are not put into the right position till the whole of the bunches are well set. *Stephen Castle.*

DAFFODIL NAMES.—A movement seems to have been started for re-arranging, and perhaps multiplying, the sub-divisions of Daffodil names. If asked, *Cui bono?* for whose benefit? I reply, certainly not for that of the general public, or gardeners. When an outsider goes to a Daffodil show and sees a flower he would like to possess, the two things he wants to know about it are its name and its price. The name is probably on the flower, but when he looks for it in the catalogue, which he is invited to take off the stall, he becomes hopelessly mystified and lost amongst the long-crowned, the bicolors, the silvery and sulphury whites, the Barri's, the Leedsii's, &c., until he gives up the search in despair. Let some enterprising dealer try the plan of printing a priced catalogue, in which every named Daffodil is to be found in alphabetical order, without any arbitrary and conventional distinctions. I think such a catalogue would be welcome to the public and profitable to the dealer. *C. Wolley-Dod, Edge Hall, Malpas, April* 24, 1903.

STRIPED NARCISSUS.—I am sending a flower of Narcissus Barri conspicuus, which may perhaps be of interest. Two of the perianth divisions are about half white, and a third with a yellow rib down the centre. *J. S. Upex.*

RECENT FROSTS IN BERKSHIRE.—From the 13th to the 20th of April we had very white mornings, with very black results, from 5° to 14° being our standing allowance; 13th, 5°; 14th, 6°; 15th, 4°; 16th, 9°; 17th, 8°; 18th, 11°; 19th, 8°; 20th, 4°. The 14° on the 18th was experienced two miles from here, and on the grass 19° being registered; and this is not the tale of one thermometer, but of six within a radius of two miles. Upon several mornings I measured icicles that were 8 inches in length. I have just walked round the garden here, plucking but one cluster of blossoms from each tree or plant, including Apples, Pears, Peaches, Plums, Cherries, Gooseberries, Currants, Raspberries, Strawberries, &c. And each of the above-named I have enclosed for your inspection. I might have given you the names of the Apples, &c., but to make a long story short, they include many popular varieties, such as Irish Peach to Lord Burghley, Bess Pool and Court Pendu Plat are the only varieties which seem to have escaped injury. I presume that you will upon examination feel very much like myself and the bees—considerable disappointment. It was very interesting to notice the apparently disappointed bees, passing quickly from flower to flower; and this too without their yellow stockings, which are so noticeable at this season. I might say that a very great deal of damage has been done to Peaches, Pears, Plums, and Gooseberries, although the trees were covered with two and three thicknesses of fish-netting. *W. Fyfe, Lockinge Gardens, Wantage.* [The flowers sent were in nearly every case ruined. Ed.]

SALTING ASPARAGUS-BEDS.—One reads under the head of gardening in ordinary newspapers occasionally some strange things. Only so recently as April 15, there appeared in the *Standard*, in relation to Asparagus dressings, advice to apply at once not only 2 lb. of salt per square yard (60 lb. per rod), but also during the growing season to give other dressings, up to from 10 to 12 lb. per square yard; that works out at from 300 to 360 lb. per rod area. Gardeners, or indeed any growers of Asparagus, will smile on reading of such applications. What soil to which such enormous dressings of salt had in one season been applied, especially if it were at all close, would be like, may well be realised. But the writer goes on to recommend the application of nitrate of soda, at the rate of from 1 to 2 lb. per square yard. That means that it should be applied at from 30 to 60 lb. per rod; and that amount, it seems, is so moderate, for, as this writer remarks, "its considerable cost dictates moderation in its use." If this be moderation, then what a blessing is it that this fertiliser is costly. This *Standard* writer fairly out-Herods Herod in his advice as to these saline applications, and shows what can only be regarded as lamentable ignorance of the subject. Had he been a manure or salt merchant, he could hardly have penned more preposterous advice. So is that relating to culture as at that date, when Asparagus generally has made appreciable stem growth, it is advised to fork the beds over, and level the surface. No wonder, after writing that, he adds, "care should be taken not to injure the crowns." The plea for the liberal use of salt as a dressing is based on the assertion that because Asparagus is at home in the sandy deposits of tidal rivers, where it partially exists in salt-water. But garden experience has proved that far superior Asparagus is produced in ordinary soils, where good manure dressings are applied, and where salt is applied, perhaps, and then but once a year, at the thinnest possible rate. Many growers use no salt whatever, yet obtain the finest of stems. *A. D.*

ANNUAL RINGS IN TIMBER.—During the late gales a large limb was blown down from an old Elm tree in the grounds here. It grew at an angle of 45° from the main stem, both of which were covered with Ivy. I enclose you sketch of section of the limb at the nearest cut to the main stem. As you will see, it was 14 inches in diameter. What I may term the centre of gravity is only 4 inches from the lower part of the limb when growing, hence 10 inches from its upper surface. The annual rings are quite distinguishable in both cases, and the same in number. Will you, or some of your experts in forestry, kindly say cause of this great difference betwixt the annual growths? *H. J. C., Grimston Park, Tadcaster.* [It is difficult to say what caused the obstruction to the growth on one side—absence of light, exposure, and other causes might have induced it. Ed.]

ANTIGONON LEPTOPUS. — This beautiful Mexican climbing plant appears to be a difficult thing to do well in this country. I have grown some plants of it for five years, but as yet have not been able to flower it, and I fancy this is the experience of many more. I saw some plants of it at Kew two years ago, but it did not show any signs of flowering, but it may have done so since. The treatment given the plant here is that of an ordinary stove climber, grown in 9 and 10-inch pots, with loam, peat, charcoal, and sand, and good drainage; with plenty of water afforded in the growing season, but very little in winter. It grows pretty freely, about 4 or 5 feet in a season. Growth very slender, which I cut back a little in the spring to strengthen it; but perhaps it would be better to let it extend itself naturally. If any of your correspondents have been successful with this plant, would they kindly give their treatment of it through your columns? *Wm. W., N.B.*

TULIPS AND PHEASANTS.—At the time when the first correspondence appeared in the *Gardeners' Chronicle* under the above heading, I found that some creatures were destroying a choice bed of Tulips, and I called the gamekeeper's attention to it, with the remark, "This is a case of pheasants." He said, "No, it is not pheasants; try a trap." And I set several small rat-traps. At first I caught several long-tailed field-mice; then I noticed something had taken to eating the mice caught in the traps. So I baited a trap with a mouse and caught a rat—a poor, half-starved looking creature, as though he had a depraved appetite; but the mischief was stayed—no more damage. I have been troubled with field-mice before. We have thousands of all sections of Tulips planted in beds in shrubberies, and in an orchard ¼ of a mile from the garden, and pheasants abound; but I have not been able to bring home a case of destruction of Tulips against the pheasants; and if your correspondent, "Lady C.," wishes to keep her pheasants occupied, I would suggest her placing a load or two of dry rubbish, peat-moss, litter, or saw-dust from stables in which there are some oats, on a warm, sunny bank near where the pheasants assemble, and so long as a few oats can be found, they will not trouble the Tulip-beds; and oats are much cheaper than Tulips. *R. Maher, gr., Tattendon Court, Newbury.*

CANADA AS A FIELD FOR EMIGRATION.—The fine prospects opened in Canada for suitable emigrants from Great Britain and Ireland, are very gratifying to those who wish well to their countrymen, and it comes with full force linked with the name of the Grand Old Man of Canada, Lord Strathcona. There must be hundreds of men in the gardening profession, who would better themselves by emigration; and when one hears of a thousand applicants for a second-rate gardener's situation, such openings as the Canadian Government offers, should meet with a ready response. As a body, gardeners are as physically fit as any of His Majesty's subjects, and conversant with the cultivation of the soil and other resourceful qualities that go to the making of a gardener; of course, good health and a willingness to work hard, are essential to success. An old Scotch friend of mine who had made some money as a settler in Canada, told me that a most important help to a colonist, was a healthy wife used to rural housewifery, such as making butter, baking bread, poultry keeping, &c. In such cases it was plain sailing to prosperity; to others not so well equipped it was an up-hill fight—but for single men there is plenty of work at good pay. Of course, there are other desirable parts of the British Empire wanting emigrants of the right sort. Australia is a splendid continent with practically no winter; they have been afflicted with drought, but that has come to an end, and the country is so fertile that with one good year they do not feel seriously the effects of a bad one. A splendid climate, hospitable people, pleasant society, where the racial peculiarities of the English, Scotch, Irish, and Welsh, get rounded off in a manner not met with in the old countries. I have two sons in Victoria doing well: the eldest had done the usual gardener's round of journeyman, foreman in a London nursery, and thought there was more scope in the Colonies, and worked as Vine-grower, market gardener, and station-hand, and lived well, and has done fairly well at each and all of them; they are now dairy farming and doing well. It is necessary to avoid the towns, and to get work in the country districts, so as to gain colonial experience before starting on your own account, as is recommended by the High Commissioner for Canada. My eldest son was recently home for a few months' holiday, and he had a look round Chelsea, and places where gardeners most do congregate, and he said, looking the matter all round from the trained gardener's point of view, he considered there were more and better openings for young men in the Colonies than in England; he did not seem to have the least desire for the old calling, and returned to Australia in November last. I may say, to any young men contemplating emigrating to the Colonies, the difficulties are not great. My sons saved their own passage-money, living in bothys and elsewhere, being both abstainers; and I may add, that the tone of society is good in the pioneer colonies of Australia. The bulk of the English, Scotch, and Irish colonials-born are abstainers, and supporters of their respective religious denominations. *R. Maher, The Gardens, Tattendon Court, Newbury.*

THE PRIMROSE.—Most of the observations contained in the letters of "E. M. A." and "Observer," in the issue for April 18, would have been rendered unnecessary if a sentence introduced into the "revise" of the article, concerning the Tæniocampa, had not been by some oversight omitted in the printing. In that sentence I mentioned the exception in the case of the "Sallow moths." I purposely inserted it in the "revise," in order to avoid any misconception. I naturally very much regret the printer's omission in the article, and the misconception which necessarily arose from it. I can now only quote from my book, *The Primrose and Darwinism* (Grant Richards), where the whole subject is more fully treated—the passage which refers to the Tæniocampa. "The wild Primrose is in bloom usually from the middle of March to the end of April. We are informed that very few night-moths (Noctuadæ), excepting members of the Tæniocampa and a few of the Geometrida appear before May, and even few in that month, June being the first month in which they begin generally to appear; that there are eleven English species of the Tænio-

campa, and that these feed especially on the spring Sallows. H. Müller, whose *Fertilisation of Flowers* is written especially in behalf of cross-fertilisation, omits all reference to insect visits to the Primrose. This shows that he had no evidence in its support" (*Primrose and Darwinism*, note, p. 32). Here it is to be noticed that the Tæniocampa and some Geometridæ are spoken of as exceptions to the usual scarcity of moths in March and April. The Sallows and the Primroses are very different flowers indeed. Whilst we have abundant evidence of these moths visiting the spring Sallows, we have not any specifically recorded instance of their being found upon the Primrose; nor does Darwin quote any. And even if we had a few, "one swallow does not make a summer." From Darwin having no positive evidence at all of their visiting the Primrose, we affirm that he, when the visits of day-flying Hymenoptera and Lepidoptera failed him, was not justified in his theory and statement. "Hence the fertilisation of the Primrose must depend almost exclusively upon moths" (*Form of Flowers*, p. 56). With reference to Anthophora pilipes, "E. M. A." says: "This particular species of the genus Anthophora, contrary to the remarks of your correspondent, nidificates gregariously." I am sure "E. M. A.," on again reading my article, will allow me to say that I never made such a statement. My words (p. 226) are: "The Anthophora is a solitary, not a social bee." The entomological distinction drawn there is between the social bees—the humble bees and hive bees, which live in communities and have neuter workers—and the solitary bees, which consist in each nest of male and female only; of which latter division the Anthophora is a member. "Social," and hence "solitary" as its contrast, and "gregarious," are very different things. I am perfectly aware of the Anthophora pilipes being found "gregariously" in large numbers in very exceptional cases. The late eminent hymenopterist, Mr. Frederick Smith, in his *Hymenoptera aculeata* (p. 191), mentions two such instances, one in the chalk-pits at Northfleet, the other (which came under the notice of Gilbert White) in the trenches of the Danish Camp near Lewes. In such localities, from their immense numbers they would be dear at a penny. Shuckard (*British Bees*, p. 240), mentions two other localities where they are met with in great profusion—Hampstead Heath and Charlton; but these are quite exceptional cases. The three largest colonies with which I am acquainted consist of from thirty to perhaps 100 pairs of bees, in the mud walls of village barns; they are separated from each other by several miles. Other smaller ones which I know consist of from three to ten pairs, seldom more, sometimes less in number; these too occur at very considerable intervals. Moreover, I do not say that A. pilipes is a "rare bee," as "E. M. A." states, but "comparatively rare." Anyone who will count the number that he sees at this season in a morning's walk in the fields, will come, I think, to a similar conclusion. I have not seen one this year, though I have looked for them on their favourite flowers. During two succeeding years I only met with one on a Primrose from March 17 to the end of April, though I must have observed millions of Primroses. Others may be a little more fortunate than I have been, but I feel sure that in any ordinary district their experience will not be unduly dissimilar to my own. One cause of their rarely being seen on the Primrose may arise from the circumstance that many do not arrive at the imago state till the Primrose season is nearly at an end. Mr. F. Smith says of A. pilipes (A. acervorum, Sm.), that "some hybernate, and that others remain in their larva state throughout the winter," and that "many will not become perfect till May, and a few probably not until June" (*Hymen. Acul.*, pp. 188, 189). This accords with what I have noticed in the colonies in the mud walls. The colonies were comparatively quite weak in apparent numbers until the last three weeks in May, and the first week in June. By the middle of May, the Primroses are generally over. Consequently only the "hybernated specimens," as in the case of the butterflies, will be upon the wing through the greater portion of March and April. My experience with Bombylius, which "Observer" mentions, has been very similar to that with the Anthophora. During two years of special observation of the Primroses, I saw only a single Bombylius, B. discolor, visiting the flowers, though, as I have said, I saw thousands upon thousands of flowers. This rarity may be due also to hybernated specimens alone appearing in the early months. As however, I am not acquainted with the economy of the Bombylius in this respect, I express no opinion as to the cause of this great variety of Bombylius amongst the Primroses. No garden affords a safe criterion of what occurs in the woods and fields, where various assortments of flowers with long monopetalous corollas suitable to them are growing; these long-tongued bees are apt to resort from the adjoining neighbourhood. Nor is the Auricula, which "E. M. A." instances, a Primrose; the tube of its corolla is wider, and its anthers when ripe are not so closely placed. Finally, I see no reason why the conclusions of Darwin should not be questioned, and even more than questioned, where the evidence against his conclusions is overwhelmingly strong. At least, as it seems that I have appeared to "E. M. A." unduly presumptuous in so doing, I may shelter myself under the ægis of Jupiter, the *Times* reviewer of my book mentioned above, in which Darwin's conclusions from his experiments are questioned in the trimorphic, and also in other flowers, says, "that experimental methods may have been faulty, and that many of the observations of Darwin may be open to subsequent improvement, may be granted." This view I uphold in reference to the Primrose. *The Writer of the Article.* *April* 20, 1903.

ROSA GIGANTEA.—I was interested in reading, on p. 188, that Mr. W. C. Leach had flowered this Rose. A few years ago I endeavoured to elicit information as to the behaviour of R. gigantea in this country. I then knew it as growing unprotected in the open in South Devon, where it had never flowered, and was anxious to ascertain if growers in other parts had been more fortunate, either under glass or against open walls; but from the information I received, I came to the conclusion that at that time it had not flowered in England. I see, however, from the editorial note, p. 211, that it has bloomed under glass with Mr. F. Cant. I believe that the large plants at Kew have not as yet flowered. It seems to be fairly hardy, as a gentleman wrote from Reigate in 1892 saying that this Rose was growing well on a W.S.W. wall on his house, and two years ago this same plant was alive, and 15 feet in height, though it had never bloomed. On the Riviera, however, it is evidently another matter, as in 1898 I was informed, through the courtesy of Lord Brougham and Vaux, that he had flowered it well at the château, Eleonore, Cannes. There appears to be considerable difference of opinion as to the colour of the blossom, which I have never seen. Mr. Leach calls it creamy-white; *Nicholson's Dictionary of Horticulture* gives it as lemon-white, and Johnson as white; while Sir Thomas Hanbury, writing from La Mortola, describes the buds as being like those of W. A. Richardson. Few nurserymen catalogue it, but amongst those who do, one styles it yellow and another white. The flower is said to be 5 inches in diameter; this size is exceeded by a fine form of R. lævigata grown in South Devon, whose blooms average 5½ inches across, and occasionally reach 6 inches. The finest specimen of this Rose that I know is growing on the front of a house facing south, and has attained a height of 35 feet with a spread of 30 feet, and is a glorious sight in May when white with its great single blossoms, which have a faint ripe-pear perfume. Where this succeeds so well, it is useless to plant such a shy-flowering species as R. gigantea has proved to be in this country; but were the latter a freer bloomer, the two would be suitable companions for warm walls in the south-west. *S. W. F.*

DAFFODILS AT ARD CAIRN, CORK.—It is a great stretch of time since I gave any notes on the Daffodil seasons at Ard Cairn, and it is now twenty years since I took to growing them for profit. What changes, and what ringing out of the old and ringing in of the new! Since 1889 we had no such forward season of bloom, as since January 25 there has been one continuous succession of flowers, and as I write it is not quite over. For the benefit of your many readers, particularly such as are in the colonies, and wish their grounds made to remind them of the rural haunts of the old land, I give a list of eighteen sorts that will stand a good share of beating, all in the different sections—sorts that are comparatively cheap and plentiful. In trumpet, or Ajax varieties: 1st trumpet, maximus longivirens, rich orange, a noble bloom, it cannot be excelled for colour; 2nd, Emperor, yellow; 3rd, Empress, bicolor; 4th, Madame de Graaff; 5th, Horsfieldi; 6th, Golden Spur, rich yellow; 7th, J. B. M. Camm, creamy-white; 8th, Mrs. Camm, white; 9th, Mrs. Thompson, white; 10th, Sir Watkin; Gloria Mundi, Queen Sophia, and Stella Superba, in the Incomparabilis class. Duchess of Westminster and Mrs. Langtry, in the Leedsii section; Erin and Sulphur Phœnix, in the double Incomparabilis; and the Latest-of-all, bicolor, Grandee, and Haworth's bicolor. This lot forms a very fine assortment, and all are exhibition blooms. There are some sorts that will not succeed in my limestone soil, such as the Tenby, Ard Righ, Countess of Annesley, and pallidus præcox; nanus also dies out. I wish also to mention some of the earliest in the order of flowering: North Star, Cervantes, Golden Eagle, Henry Irving, John Bright, King Humbert, Princeps, spurius, Tottenham Yellow, Buttercup, Saragossa, Imogen, Claddagh, Maw's bicolor, S. Arnott, Tuscan Bicolor, and Poeticus præcox grandiflorus (this always blooms in March), North Star and Cervantes in January, all out-of-doors. White Trumpet or Swan's Neck Daffodils thrive here very well indeed, with the exception of Colleen Bawn. I gathered the Irish cernuus on February 16. A word about the red cup sorts. I have some with the trumpet solid red to the base, 1¼ inch in length, like Wm. Wilks and Nelsoni major, beautiful things in the Burbidgei, Barri, and Bernardi classes. Some Poeticus forms with broad, latifolius foliage, red cups, and perianth segments of the purest white; one named by Mr. Burbidge Rose Bedford is a great beauty. Such as Bernice, Orestes, Prometheus, Corsair, Ovid, Isabel, Sylvia, Hauteur, Pylos, Rose Bedford, Arcadia, Eos, Aspasia, &c., are very nice. Some lovely Leedsii forms, all having large red cups, will also appear; free and vigorous, growing from 20 to 24 ins. in height, short, broad foliage. The varieties Miss Weisse, Niobe, Delos, Laura, Delta, Perseus, Lady McCalmont, the finest Leedsii extant, and a good match; Lady Gregory, Laura, and Miss Weisse highly perfumed—a sort of whiff of Hawthorn and Primroses, will also soon be put into commerce. Among trumpets I had almost forgotten the noble King Alfred, M. J. Berkeley, and my own market seedling, named also by Mr. Burbidge as "Spread Eagle," a large, late concolor princeps. *W. B. H., Cork.*

The Week's Work.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury.

Vanda Kimballiana is a species considered by some gardeners difficult of cultivation. At Westonbirt, a moderate degree of success has been obtained with it. The plants grow in square teak-wood baskets, in clean fresh sphagnum, above good drainage. In the season of growth now begun, the plants are suspended from the rafters of the house, where no direct sunshine reaches them, and where the temperature at night ranges from 60° to 65°, with a rise of 5° to 10° by day. The plants are syringed freely in fine weather, until the flowers begin to open, that is in early autumn. At the present season remove the whole of the old rooting-materials, and replace it with new. The same methods must be followed when the plants are put into new baskets. Never disturb a Vanda unless the compost has become sour or much decayed, or the plant needs to be placed lower in the basket. After any considerable root disturbance afford much shade for a few weeks, and syringe frequently.

Vanda Amesiana.—Plants which come to this country in the spring should be thoroughly

cleansed, potted forthwith, afforded a shaded position, and be frequently syringed. With this sort of treatment new roots will soon emerge, and the plants become established, when more light may be afforded, and treatment follow the lines indicated in the above remarks.

Temperature.—The weather hitherto has been most unfavourable for warm-house Orchids, but little ventilation by day being possible at any time, and artificial heat has been as much called for as in mid-winter. In such weather the damping down should be regulated accordingly, and the night temperature should be permitted to drop a few degrees below the normal, rather than induce too much dryness in the houses by endeavouring to keep up a given temperature. Moreover, thrips and red-spider increase greatly at such times, and the young growths of Orchids, especially those of Dendrobiums, soon get disfigured.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Planting.—One of the advantages of using in the flower garden, plants which vary in their requirements as to protection against cold, is that the planting season is extended over several weeks. Among those which may be planted at about the present date, if hardening off has received attention betimes, are the early-flowering Chrysanthemums, the various forms of Lobelia cardinalis, autumn-struck Antirrhinums, Pentstemons, Gaillardias, Pansies, and Verbena venosa, raised at an early date from seeds. Of course, this can only be done successfully if the weather be favourable for planting. Getting all such things planted at this date, greatly lessens the labour of looking after them at a busy season. Summer Chrysanthemums should be planted in well-manured land, and in an open situation. Lobelia cardinalis succeeds in a moist soil, and is not injured by shade, provided the plants are not planted beneath umbrageous trees. Antirrhinums should be allowed full sunlight, and a rather poor soil. Pentstemons and Pansies should be planted in a rich soil, and a cool situation.

Seeds.—Seeds of the "bunch" Primroses, so effective in spring gardening, and which may be supplemented with some of the Wilson Blue Primroses, should be sown now either on a moist, shady border or in boxes. The latter may occupy during the time of germination a cool, shady frame. Of "bunch" Primroses, the white and the yellow varieties come true from seed, and if sown early, and grown on fast during the summer, they make a fine effect in the spring garden the next year. I do not advise division of these plants, however good the variety may be, as the best results are to be had from seed. Sow Wallflower seeds at this season, it being a mistake to sow the seeds late, and then to rush them up in rich soil. Such plants are not nearly so hardy or floriferous as early-raised ones grown on rather poor soil.

The Frame Ground.—Afford air to all kinds of bedding-plants in cold frames, so as to render them hardy before setting out in the beds, the lights being drawn off in fine weather.

Box Edgings.—Where Box forms the edging to flower-beds, or is used in scroll-beds, it should now be clipped fairly hard.

FRUITS UNDER GLASS.

By T. H. C.

Miscellaneous. — Attend to the disbudding, pinching, and, where necessary, the tying-in of the shoots of the various fruit trees. Thin out the fruit where abundant and swelling freely. Afford water carefully to trees in pots and borders, also diluted liquid-manure to those in need of it. Syringe with quassia-water any trees infested with aphis, but do not use it after the fruits have attained a large size, or a bitter taste will be imparted to them. Syringe the trees at least once daily in fine weather, and occasionally damp the paths and borders. Ventilate continually, except on cold nights.

Melons.—The earliest Melons will soon be full grown, a stage at which water must be carefully applied, or splitting of the fruits will occur. Less moisture in the air is required, and as much ventilation as it is prudent to afford, or flavour in the fruits will be lacking. See that the fruits are carried securely by nets or pieces of board, or they will part from the stalk before being quite ripe. The night temperature may range from 70° to 75°, rising 10° to 15° more by day, with ventilation. Until the fruits begin to ripen, let the foliage be syringed twice daily, and the paths, &c., frequently damped in fine weather.

Succession Melons.—When an even and full set of fruit has been obtained, top-dress the border with a layer 3 inches thick of rich pasture-loam three parts, and horse-droppings one part, to which may be added charred garden refuse in small quantity, making the whole firm. Later in the season the plants may be assisted by weak liquid-manure. Gradually remove all growths excepting those bearing fruits, and do not crowd the foliage. Fertilise the female blossoms daily on later plants, at the same time provide a dry atmosphere, and ample ventilation when at all possible. Do not allow young plants to become pot-bound before planting, but place them in their quarters as soon as one rough leaf is made; or if not convenient to plant out at that time, shift them into 5-inch pots. Do not plant in soil containing animal manures, as these may be used to better advantage as a top-dressing after the fruit is set. The night temperature should be kept at 70°, and by day 10° to 15° higher, with the usual syringings, atmospheric moisture, and ventilation afforded according to the state of the weather. Sow seeds for August fruiting.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Peach and Nectarine-trees.—The recent weather has inflicted a severe check on the growth of the trees, and blister and curl are very prevalent, and aphis numerous. At the present time there is a risk in using liquid insecticides, and tobacco-powder should be employed in preference, puffing it into the points of the shoots by means of a flexible distributor. On the return of milder weather, disbudding should be proceeded with without delay, and the syringing of the foliage with an insecticide.

Morello Cherries and Sweet Cherries.—If black-aphis appear on the shoots and leaves, let tobacco-powder immediately be used. If only a few shoots on a tree are infected, let them be dipped in a vessel containing weak tobacco-water.

Strawberries.—Plants for autumn fruiting, if already planted out, should be afforded the protection of evergreen boughs stuck into the soil about the plants, with the tops leaning over them. Alpine varieties will for the present be safer in cold pits.

Hints on Work in General.—Let the small-fruit quarters be hoed over, so as to keep weeds in check. Examine freshly-grafted trees and stocks, smearing the clay with wetted hands if it be cracked, filling-in the cracks.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Chrysanthemums.—Transfer the general stock into 5½ or 6¼ inch pots before the plants are checked in growth by becoming pot-bound, using soil similar to that recommended in an earlier Calendar, with the addition of a little bone-meal and a 6-inch potful of soot to every five or six bushels of soil. Pot firmly, secure each plant to a neat stake, return them to cold frames, standing them on coal-ashes, and keep rather close for a week; then pull back the lights for several hours daily if the weather is genial, or afford less air if it be not genial.

Coleus.—My first batch has just been shifted into 7 and 8 inch pots. The best kind of soil to use is one consisting of turfy-loam with about a quarter of the whole of decayed cow-dung, and a moderate quantity of leaf-soil and sharp sand. For the present keep the plants in a pit or house having a warmth of 55° at night and 65° by day, and near to the roof-glass. Pinch out flowering shoots as they show. Insert more cuttings, growing them in 48's for decorative purposes.

Greenhouse Rhododendrons.—These are beautiful plants, having fine fragrance, and valuable as specimen plants, the flowers being excellent for cutting. These Rhododendrons need not be repotted annually, but it is well at about this date as they pass out of flower to examine them as to the state of the soil and drainage. If very much pot-bound, afford a shift into a rather larger pot, employ the best hard peat, plenty of silver sand, and thorough but not excessive drainage, and pot firmly. Repotted plants need a night temperature of 55° to 60°, and should be syringed twice daily, and water afforded at the root in moderate quantity till the roots have entered the new soil. Keep the heads evenly balanced, shortening strong, runaway shoots. Choice varieties are Countess of Haddington, blush-white; Lady Alice Fitzwilliam, white flowers; Edgworthi, white, with a tinge of blush; jasminiflorum, white; Purity, white; the quartette being very sweet scented.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Broad Beans.—Sowings may be made at fortnightly intervals in deeply dug and not freshly manured ground. Make good vacancies in the lines, and mould up the plants when six inches high.

Dwarf and Runner Beans.—In warm parts of the country, sowings may be made of the former, on a south border, on well-manured land, drawing the drills at two feet apart and three inches deep, and planting the seeds in double lines. Runner Beans should be sown in drills eight or ten feet apart, sowing two lines of seed in each drill at six inches apart each way; or for this early sowing the seeds may be sown thickly, and the plants thinned to the required distance.

Cauliflowers. — Cauliflowers planted out last month, even when under hand-glasses and other kinds of protection, have been injured by frost in some gardens. These should be removed, and the gaps made good with other plants. Dryness of the soil being the chief cause of buttoning in Cauliflowers, water should be afforded on mild mornings. Plants that were pricked out some time ago, and are now well hardened off, should be carefully lifted with a trowel, pressing the ball firmly; and be planted the smaller growing varieties at 15 inches, and the larger ones at 18 inches apart. Apply water forthwith, and continue so to do as may be necessary. Cauliflowers require a deeply dug rich soil, an open position, and to be afforded liquid-manure in quantity in dry weather, and the ground to be kept stirred with a hand-fork or hoe. A small sowing of Veitch's Autumn Giant Cauliflower may be made at this date.

Brussels Sprouts.—This plant requires similar treatment to the Cauliflower, and in planting, a distance afforded of 2½ to 3 feet between the rows, and 2 to 2½ feet from plant to plant. It is a mistake to crowd the plants, as the growth is then tender, and the plants suffer from frost.

Lettuces.—Sow in alternate weeks till the first week in August, and if possible from this date onwards sow where the plants can remain. Cos Lettuce should be afforded a distance of 1 foot, and the Cabbage varieties 10 inches each way. Plant well hardened-off Lettuces on a warm border as soon as the weather becomes genial, those that were raised and dibbled-out under glass, affording water if the weather be dry. Where slugs or birds give trouble, dust the plants with finely-sifted coal-ashes, soot, or lime. Cos varieties which have stood out-of-doors since the autumn, should be tied up when nearly of sufficient size for use, and the leaves are dry.

Tomatos.—Plants intended for growing out-of-doors should be kept near the glass in a warm pit, repotting them so as to obviate stunted growth. No success attends outside cultivation if the plants are not vigorous and carefully hardened-off before they are planted, which should take place in the last week in May or the first week in June.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR MAY.

FRIDAY,	MAY 1	Royal Botanic Society Lecture.
SATURDAY,	MAY 2	Société Française d'Horticulture de Londres, Meeting.
MONDAY,	MAY 4	Surveyors' Institute, Junior Meeting.
TUESDAY,	MAY 5	Royal Horticultural Society Committees Meet, Lecture on "Peculiarities of the Cape Flora." Royal Gardeners' Orphan Fund, Annual Dinner at Hotel Cecil.
THURSDAY,	MAY 7	Linnean Society Meeting (Zoology). Surveyors' Institute Meeting.
FRIDAY,	MAY 8	Royal Botanic Society, Lecture.
SATURDAY,	MAY 9	Royal Botanic Society Meeting.
MONDAY,	MAY 11	United Horticultural Benefit and Provident Society Committees Meet.
FRIDAY,	MAY 15	Royal Botanic Society, Lecture.
MONDAY,	MAY 18	Surveyors' Institute, Meeting.
TUESDAY,	MAY 19	Royal Horticultural Society Committees Meet: also National Tulip Society's Show and Conference at Drill Hall.
WEDNESDAY,	MAY 20	Royal Caledonian Horticultural Society's Show, at Edinburgh (two days).
FRIDAY,	MAY 22	Royal Botanic Society, Lecture.
MONDAY,	MAY 25	Annual Meeting and Dinner of Kew Guild, at Holborn Restaurant. Linnean Society, Anniversary Meeting at 3 P.M. Surveyors' Institute Annual General Meeting at 3 P.M.
TUESDAY,	MAY 26	Royal Horticultural Society's Show in the Temple Gardens, Thames Embankment (three days).
WEDNESDAY,	MAY 27	Royal Botanic Society Meeting. Bath and West and Southern Counties Show at Bristol (five days).
THURSDAY,	MAY 28	Irish Gardeners' Association Meeting.
FRIDAY,	MAY 29	Royal Botanic Society Lecture.

SALES FOR THE WEEK.

WEDNESDAY, MAY 6—

Palms, Perennials, Herbaceous Plants, Geraniums, Begonias, Ferns, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

FRIDAY, MAY 8—

Orchids in great variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —52·2°.

ACTUAL TEMPERATURES:—

LONDON.—*April* 29 (6 P.M.): Max. 60°; Min. 49°. *April* 30 (Noon): 59°; showery.

PROVINCES.—*April* 29 (6 P.M.): Max. 55°, Home Counties; Min. 45°, N.E. Scotland.

ROYAL HORTICULTURAL SOCIETY: TEMPLE FLOWER SHOW, MAY 26, 27, 28, 1903.—For the sixteenth year in succession the Royal Horticultural Society will hold their great annual flower show in the Inner Temple Gardens (by the kind permission of the Treasurer and Benchers), on May 26, 27, and 28. Every year the desire of growers to exhibit increases, and the officials of the Society have a very anxious task in endeavouring to do justice to those growers who regularly support the fortnightly shows of the Society held at the Drill Hall, Buckingham Gate, and yet at the same time to encourage others to come forward. The space is absolutely limited by order of the Temple authorities; no more, or larger tents can be erected, hence every new exhibit which is accepted, means curtailment of the space allotted to previous supporters. The Society will issue an "official catalogue" comprising a history of the Royal Horticultural Society, particulars of the meetings and exhibitions held at the Drill Hall; of the great summer flower show to be held at Holland House, Kensington, on June 25 and 26; and of the fruit and vegetable show to be held at Chiswick on September 29, 30, and October 1; also a schedule of exhibits, with the names and addresses of all the Temple exhibitors entered up to May 18. There will also be the programme of the music to be performed each day by the band of His Majesty's Royal Horse Guards (Blues). The judges will meet at the Secretary's tent at 10.30 A.M., on May 26, at which hour punctually the tents will be cleared of all exhibitors and their assistants. The Fruit, Floral, and Orchid Committees will assemble at the Secretary's tent at 11 A.M. sharp, and the show will be opened at 12.30. All plants for certificate must be entered on or before Thursday, May 21. Address, Secretary, Royal Horticultural Society, 117, Victoria Street, London, S.W. A notice on a post-card will be sent to each exhibitor on Tuesday, May 19, stating the number of square feet allotted to him, and the number of the tent (or tents) in which the exhibits are to be placed. No plants can under any circumstances be entered on the day of the show.

—— The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will be held on Tuesday, May 5, in the Drill Hall, Buckingham Gate, Westminster, 1 to 5 P.M. A lecture on "Peculiarities of the Cape Flora" will be given by the Rev. Prof. GEO. HENSLOW, M.A., V.M.H., at 3 o'clock.—At a general meeting of the Society held on Tuesday, April 21, fifty-nine new Fellows were elected, among them being the Marquis of Granby, Countess Cairns, Lady Evelyn Scott, the Hon. Mrs. Heywood-Lonsdale, the Hon. Mrs. Mark Napier, the Hon. Mrs. Henry Gladstone, the Hon. Mrs. Pennant, and Prof. James Ward, Sc.D., making a total of 605 elected since the beginning of the present year.

—— PRIZES FOR TULIPS.—At the Royal Horticultural Society's fortnightly meeting to be held in the Drill Hall, Buckingham Gate, on May 19, special prizes will be offered for Tulips by the Royal National Tulip Society. For schedule of prizes see Royal Horticultural Society's *Book of Arrangements for* 1903, pp. 63 and 64. Copies will be sent free on application to the Secretary, Royal Horticultural Society, 117, Victoria Street London, S.W.; or separate schedules can be obtained from A. D. HALL, Esq., The Oast House, Harpenden.

LINNEAN SOCIETY.—The next meeting of the Society will be held on Thursday, May 7, 1903, at 8 P.M., when the following papers will be read:—Dr. H. J. HANSEN, F.M.L.S., "The Ingolfiellidæ, fam. nov., a new type of Amphipoda;" Mr. A. BENSLEY, "The Evolution of the Marsupials of Australia" (communicated by Professor HOWES, F.R.S., Sec.L.S.); Rev. Canon NORMAN, F.R.S., F.L.S., "Copepoda Calanoida from the Faröe Channel, and other parts of the North Atlantic."

THE LATE MR. BARRON.—Such numbers of letters and telegrams expressive of sympathy and condolence have reached Mrs. BARRON, that she is unable to reply to them individually. She has therefore, on behalf of her family and herself, requested us to give publicity to her heartfelt gratitude for these tributes of respect for her husband's memory, and of sympathy with herself.

MR. W. H. THOMSON.—An interesting event to the inhabitants of Clovenfords and district, and to his many friends, took place on Thursday evening, April 16, in the coming of age of Mr. W. H. THOMSON, of the firm of WILLIAM THOMSON & SONS, Ltd., Tweed Vineyards. The employés of the firm and the members of the Clovenfords Draughts Club, of which Mr. THOMSON is president, marked the occasion with the presentation to Mr. THOMSON of a handsome marble clock and pair of bronzes.

THE PROPOSED GARDENERS' DINNER, SEPTEMBER 29 NEXT.—Much interest in this proposed Dinner for Gardeners has been aroused, and it is intimated for general information that the function will take place in the fine King's Hall of the Holborn Restaurant. It is proposed to arrange for a reception by the chairman of the dinner, and other distinguished horticulturists, of all who may attend the dinner, thus giving them a cordial welcome. That reception it is hoped will commence at 6.30, and the dinner at 7 P.M. The London Pierrot company, a talented troupe of vocalists, will furnish the entertainment. Messrs. J. SMITH, Mentmore; J. JENNINGS, Ascott; C. JEFFRIES, Brentford; and G. KELF, Regent's Park, have been added to the Committee. That body meets again for final selection of the 100 Provincial stewards, all gardeners, on Tuesday next, to each of whom a circular of invitation to act as such, in aid of the dinner, will be sent. It may be as well to intimate that as the suggestion for the dinner came from the Royal Horticultural Society's Fruit Committee, it was resolved that membership of the Dinner Committee should be restricted to members of the Fruit and Floral Committees. At the same time, the presence of any horticulturists at the dinner will be heartily welcomed, and the toast list will doubtless be a comprehensive one. It is particularly hoped that some ladies will grace the dinner with their presence. Tickets will be 5s. each, morning dress being worn. Mr. A. DEAN, 62, Richmond Road, Kingston-on-Thames, is the Secretary.

EDGBASTON BOTANICAL GARDENS.—About seventy fine varieties of Hippeastrums, and a quantity of plants of show Auriculas, add to the other floral attractions of the glasshouses in this garden. The Hippeastrums have been raised in the gardens from seed, and some of the blossoms are remarkable for fine quality. A plant of Toxicophlœa spectabilis could be seen in good bloom, and a Franciscia calycina was carrying fine flowers. The Orchid-houses also contain many subjects.

NATIONAL FRUIT-GROWERS' FEDERATION.—The first annual general meeting will be held at the Caxton Hall, Caxton Street, Westminster, on Tuesday, May 5, at 2.30 P.M.

THE HOME COUNTIES NATURE-STUDY EXHIBITION.—The Association which held the very successful Nature-study exhibition last year was organised for that purpose alone, and has been dissolved. It suggested, however, in its official report, that the movement with which it was so prominently identified could, for the present, be

test advanced by local organisations, the activity of which it had already noted with satisfaction. In order, therefore, that the work may be continued in the south-eastern counties of England, which are more or less in touch with the metropolis, and as an outcome of the efforts of delegated members of the Middlesex Field Club and Nature-Study Society, and the Selborne Society, a home-counties Nature-study exhibition is being organised in London on definite lines, and will be held this year, it is hoped, in the gardens of the Royal Botanic Society, at a time convenient to teachers. Lord Avebury, F.R.S., is chairman of the committee, and the list of patrons already includes the Countess of Bective, Lady Frederick Cavendish, the Marquess of Ripon, the Earl of Aberdeen, the Earl of Stamford, the Bishop of Hereford, Lord Herries, the Right Hon. Henry Hobhouse, M.P., Sir George Kekewich, Sir Joshua Fitch, Sir Philip Magnus, and the officers of the recent Nature-study exhibition—Sir John Cockburn, Mr. C. S. Roundell, and Mr. J. C. Medd. Upon the committee will be found such well-known naturalists, educationalists, and public people as the Right Hon. James Bryce, M.P., the Right Hon. Jesse Collings, M.P., the Hon. Walter Rothschild, M.P., Sir John Hutton, Mr. G. Herbert Morrell, M.P., Mrs. Brightwen, Mrs. Franklin, Mrs. Owen Visger, Prof. Henslow, Prof. Boulger, Mr. A. D. Hall, Mr. Richard Kearton, Mr. C. J. Cornish, Mr. M. E. Sadler, Mr. Harold Wager, Mr. A. J. Shepheard, Dr. Kimmins, and Mr. H. Macan. On behalf of the Executive Committee, and as members of the Executive of the late Nature-Study Exhibition Association, we venture to bring the undertaking to your notice, and to intimate that, after carefully considering the results and reports of last year's exhibition, the committee has drawn up a scheme, with schedules, which may be obtained from the Honorary Secretary, Mr. Wilfred Mark Webb, at 20, Hanover Square, W., who will gratefully receive all offers of help in the form of prizes, donations, subscriptions, and suggestions as to exhibits. We sincerely trust that this effort to localise and to promote the Nature-study movement will meet with the ready sympathy and support of all interested in a branch of education so full of promise. *Signed: Mary Gurney, Frederick Oldman, R. Hedger Wallace, Wilfred Mark Webb (hon. sec.), J. Martin White, 20, Hanover Square, W., April* 14, 1903.

FIG. 113.—THE GHENT QUINQUENNIAL: SHOWING THE ARRANGEMENT OF THE AZALEAS AND OTHER PLANTS IN THE TEMPORARY ANNEXE. (SEE P. 267, IN LAST ISSUE.)

"THE GARTENFLORA."—Dr. J. BUCHWALD has conferred a boon on readers of the celebrated German periodical by compiling a full index to volumes 41 to 50, 1892 to 1901 inclusive. We cannot overrate the services of index makers.

JAMES W. WITHERS, whose death we recently recorded, was President of the American Gardening Publishing Co., and business manager of the paper of that name. He died at Kingston, Jamaica, on April 13, from a long-standing chronic disease of the kidneys. Mr. WITHERS was born at Welchpool, Montgomeryshire, Wales, forty-two years ago, and was the son of the steward and factor on the estate of the Earl of Powis. At an early age he was apprenticed to the gardening profession at Vaynor Hall, one of the old-time famous gardens of Great Britain, and he evinced such aptitude in his chosen work that at the early age of twenty-one he found himself in charge as head gardener at Cructon, near Shrewsbury. Shortly after this he engaged in the produce business in England, but soon returned to his regular work, and for a time was in charge of the Begonia Propagation Department in the nurseries of Messrs. JOHN LAING & SONS, Forest Hill, near London. He came to the United States in 1891, and after spending a short time in the Oasis Nurseries, Westbury Station, L.I., he became associated with the then firm of PITCHER & MANDA, at Short Hills, N.J. He represented this firm during a large portion of the time that the World's Fair was running in Chicago. Returning from Chicago, he went to London to arrange for the closing up of the European branch of the

United States Nurseries, and shortly after his return became associated with the *Florists' Exchange*. The owners of that paper had also purchased *American Gardening*, and part of his time was devoted to the interests of the latter paper. He did very meritorious work in connection with the *Exchange*. In 1898 he purchased *American Gardening* from the old firm, and managed it on his own account until April of 1901, when he formed the American Gardening Publishing Company. The long lingering disease under which he suffered was unsuspected by many of those who had opportunities for association with him, so that the news of his collapse and ultimate death came as a shock to many who knew him until a year or so ago, as a man of exceptionally vigorous appearance.

THE SURVEYORS' INSTITUTION.—At the ordinary general meeting held on Monday, April 20, 1903, The President (Mr. ARTHUR VERNON), in the Chair, a paper was read by Mr. H. TRUSTRAM EVE (Fellow), entitled "Modern Methods of Valuation of Manurial Residues." A short discussion on the paper took place, and was adjourned to the meeting of Monday, May 18. A vote of thanks was unanimously passed to Mr. EVE for his paper.—A general meeting of members was held on the same day for the purpose of approving a proposal for an application to His Majesty's Privy Council for sanction to certain amendments and additions to the bye-laws. In the result the three resolutions before the meeting were passed. A further general meeting of the members will be held on Monday, May 4, at 5 P.M., for the purpose of confirming the said resolutions.—The next ordinary general meeting will be held at Leinster House, Dublin, on Thursday, May 7, at 10 A.M. The last ordinary general meeting of the session will be held in the lecture-hall of the Institution on Monday, May 18, when the discussion will be resumed on the paper read by Mr. H. TRUSTRAM EVE at the meeting of Monday, April 20, entitled "Modern Methods of Valuation of Manurial Residues."

SUCCESSFUL FLORAL DECORATIONS.—At the opening, on Wednesday, April 29, of the new premises of the Royal School of Art Needlework, South Kensington, by H.R.H. the Prince of WALES, the rooms and staircases were abundantly decorated. Palms supplied a green background, and were relieved with Marguerites, Cytisus, and Cinerarias. The decorations were lent by J. BUTLER of Sloane Street, and CH. WOOD of High Street, Marylebone, Court florists to H.R.H. Princess CHRISTIAN. The royal tea-table was tastefully decorated with trails of Smilax, and pink Roses and Tulips. The Princess CHRISTIAN was presented with a pretty bouquet of pink Roses; the Princess of WALES with one of yellow flowers. Offerings to the other royal ladies present consisted of posies and sprays of Lilies of the Valley.

INTERNATIONAL HORTICULTURAL EXHIBITIONS AT LIMOGES.—We are informed that the Horticultural Committee of the Limoges Exhibition, composed of representatives of the horticultural and arboricultural societies of the city, in addition to a permanent show, held concurrently with the general exhibition from May to September in the gardens at the Champ de Juillet, has arranged to hold occasional congresses also. These meetings are fixed for the following dates:—1. Saturday 13 to Friday 19 of June; 2. Saturday 11 to Friday 17 of July; 3. Thursday 6 to Monday 10 of August; and 4. Saturday 12 to Friday 18 of September. A large space is reserved for the exhibits, and for horticultural and arboricultural products, tools, apparatus for heating greenhouses, accessories, &c.

"ATLAS D'ENTOMOLOGIE FORESTIÈRE."—A second edition of a very useful work on Forest Insects, compiled by Mr. E. HENRY, of the forest school at Nancy, and to be had of WILLIAMS & NORGATE. The work is based upon one originally published by the late M. MATHIEU, but has been revised and extended. In its present form the work consists of forty-nine 8vo plates, with full explanations, and representing the principal insects that are injurious to forest trees in Europe. It will be very useful for reference to all concerned with woodcraft, or the growth of trees.

FIG. 114.—THE GHENT QUINQUENNIAL: A VIEW IN THE ORCHID-SALOON SHOWING THE COLLECTION FROM M. VINCKE-DUJARDIN. (SEE P. 267 IN LAST ISSUE.)

EXHIBITION SCHEDULES.—

THE HULL AND DISTRICT HORTICULTURAL ASSOCIATION has issued a schedule of prizes to be offered at their third annual show, to be held in the Artillery Barracks, Park Street, Hull, on September 16 and 17. The secretary is Mr. J. FRED. POSTHILL, 65, Argyle Street, Hull.

THE BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY'S Annual Report includes schedules of prizes to be offered at three exhibitions in the present year. The first was held on April 21 and 22, the second will take place on Aug. 25 and 26, and the Chrysanthemum show on November 3 and 4. All of these shows will be held in the Dome and Corn Exchange, Royal Pavilion. The secretary is Mr. J. THORPE, 53, Ship Street, Brighton.

THE WOKING HORTICULTURAL ASSOCIATION was commenced in 1893, and is doing useful work

in the holding of monthly meetings. At each meeting a lecture upon some horticultural subject is given, and an exhibition of plants, fruits, and vegetables, is made by the members. The meetings are therefore of much interest, and afford instruction to all attending them. Mr. Montague Rose, Elm Villa, Woking Village, Woking, is the Hon. Sec.

Publications Received.—*Journal of the Department of Agriculture of Western Australia*, February. Full of useful notes concerning Fruit Culture, the garden, and agricultural matters in general.—*Bulletins of the Department of Agriculture, Kingston, Jamaica*, February and March. Contents: Health and Disease in Plants, Cassava from Colombia, Economic Uses of Coco-nut, Cane Experiments in British Guiana, Tables of Sugar Production, International Conference on Plant-Breeding and Hybridisation, &c. — Imperial Department of Agriculture for the West Indies. *Cotton and Onion Industries*: the substance of an address by the Commissioner of Agriculture.—*West Indian Bulletin*, vol. iii., No. 4. Contents: Scale Insects, Green Sorghum Poisoning, West Indian Fodder Plants. — Bulletin of the Agricultural Experiment Station of the Louisiana State University and A. & M. College. Second series, No. 73. *Analyses of Commercial Fertilisers and Paris Green.* — *Berichte über Land und Förstwirtschaft in Deutsch Ostafrika.* Erster Band, Hefte 3, 4, & 5.—*Annual Report of the Botanic Gardens, Singapore*, for 1902. In spite of all drawbacks and difficulties, the gardens were kept bright and improved in many ways.—The British South Africa Company: *Reports on the Administration of Rhodesia*, 1900-1902 (with Appendix). Deals with the Political Life, Internal Administration, Industrial Progress and Resources, and Local Affairs of the district, with useful maps. Agriculture in Southern Rhodesia has made progress, and is likely to continue to make strides as the country becomes more settled. In Mashonaland the crops have been excellent.

SOCIETIES.

SOCIÉTÉ ROYALE D'AGRICULTURE ET DE BOTANIQUE DE GAND.

THE GHENT QUINQUENNIAL.

(April 18 to 26.)

(*Concluded from page* 288.)

GREENHOUSE TUBERS.

Gloxinias.—A Medal offered by the Williams' Memorial Fund Trustees was awarded to a collection of Gloxinias, shown by M. Jules Van Eeckhaute, Gentbrugge. The strain had spotted and netted flowers of large size, but was not superior to those now common in England, though several of the shades were novel.

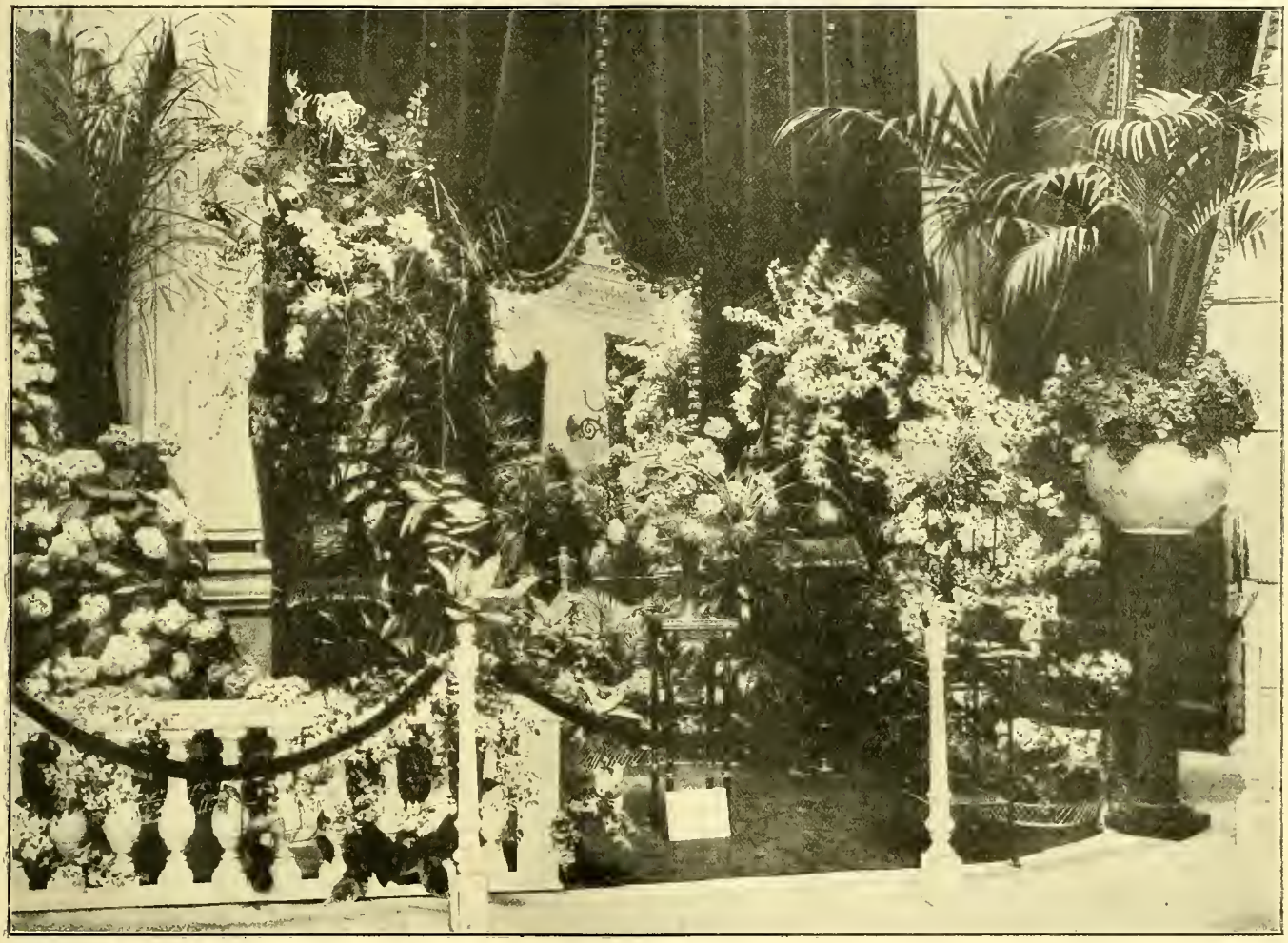

Fig. 115.—THE GHENT QUINQUENNIAL: SHOWING THE ATTRACTIVE EXHIBIT OF FLORAL DEVICES FROM M. DE BRIE, OF PARIS. (see p. 285.)

Begonia Gloire de Lorraine alba grandiflora, exhibited by M. L. J. Draps Dom, appeared to be similar to the Turnford Hall variety, distributed by Messrs. Thos. Rochford & Sons. M. Firmin de Smet exhibited a group of Cineraria stellata, similar to the strains cultivated by English firms (Silver Medal).

HOTHOUSE PLANTS.

These were staged, as usual, in the specially heated portion of the main building, and in the general view the fine scarlet and hybrid Anthuriums, for which the principal Ghent nurseries are noted, supplied the most salient features. In the classes arranged for these exhibits the competition was keen, and in most cases the difference between the prizetakers was ruled by size.

Class 95 (collection of hothouse plants with variegated foliage) brought a fine series of exhibits, the 1st prize ("*avec félicitations*"), a work of art, being taken by La Société Horticole Gantoise, who staged some grand specimens, of which we noted noble examples of Vriesia hieroglyphica, Phyllotænium Lindeni; Alocasia "Martin Cahuzac," an improvement on A. Veitchi; Dracæna Godseffiana, with its beautiful yellow-spotted foliage; D. Sanderiana, a perfect pyramid of green and silver foliage; Spathiphyllum picturatum, with large yellow-spotted leaves; and a generally good selection of the best foliage plants. The 2nd prize went to M. Millet-Richard, of Ledeberg, Ghent whose best plants were Heliconia rubricaulis, Nephthytis picturata, marbled with silver; our old friend Sanchezia nobilis, in its best aspect; Dracæna Goldieana, &c.

The 1st prize for twelve hothouse plants (Class 96) went to L'Etablissement Dallière, Ghent; the 2nd to M. H. Millet-Richard.

Twenty-five Nepenthes (Class 100) brought one exhibitor, L'Etablissement Riodts, of Meirelbeke, who showed a very good collection, and obtained the 1st prize.

Twenty Marantas (Class 109) brought good exhibits, M. Draps Dom, of Laeken, securing the 1st prize, his showiest plants being large specimens of M. Gouleti, a pretty variety; and M. Makoyana. The 2nd prize went to M. De Smet-Duvivier, whose collection was very praiseworthy, and his consolation for losing the 1st prize in this class came in his securing it in Class 110 (ten Marantas).

CROTONS (OR CODIÆUMS),

so far as a show is concerned, are important exhibits in such large structures as were those at Ghent, and they contributed much to the beauty of the show. Viewed from the balcony above, the 1st prize collection (twenty Crotons) of M. Delaruye-Cardon, of Ledeberg, was a fine feature; the 2nd prize lot of La Société Horticole Gantoise very effective; and the 3rd prize collection of M. Draps Dom, of Laeken, equally good, though smaller.

In Class 112 (ten Crotons), M. Delaruye Cardon

again succeeded in taking the 1st prize: the 2nd falling to L'Etablissement Dall'Ère, of Ledeberg, Ghent.

DRACÆNAS AND BROMELIADS.

were well shown, and very effective. In Class 115 (twenty-five Dracænas), M. Draps Dom. of Laeken, famed for his success as a grower of ornamental plants, secured 1st prize with a very fine lot: the 2nd going to M. L. de Nobile, of Mont St. Amand; and the 3rd to M. Wattecamps-Swellen, of Ghent.

Class 122 (thirty Bromeliads) was an interesting one, the Gold Medal going to M. L. Poelman, of Mont St. Amand, for a very showy collection of hybrids of Vriesia brachystachys and V. psittacina, in flower, with scarlet and yellow bracts and flowers of various shades, V. nigrescens being nearly black.

For fifteen Bromeliaceæ, in flower, Messrs. L. Duval et Fils were 1st; and in Class 124 (fifteen specimen Bromelias) M. Delaruye-Cardon, of Ledeberg, was successful in gaining 1st prize.

Fig. 116.—Ficus pandurata: a new plant shown at the Ghent Quinquennial by Messrs. F. Sander and Sons. (See p. 245. *ante*.)

One of M. Draps Dom's finest exhibits was Dracæna Père Charon (1st prize, Class 117), an improvement on the brilliantly-coloured D. terminalis stricta, and which bids fair to become one of the best-coloured Dracænas for market and decorative purposes.

In the classes for the yellow variegated Dracæna Lindeni and D. Massangeana, the 1st prizes went in the former class to M. Lambeau, of Brussels, and in the latter to M. Story, of Ghent.

The 1st prize for twenty-five Dracænas of the same species, with coloured foliage, was won by Messrs De Rense, of Saffelaere; the 2nd going to M. Story, of Ghent.

For a single specimen Bromeliad, M. Draps-Dom gained 1st prize; M. Jules de Cock 2nd, and M. A. de Smet 3rd.

Class 129 (hybrid Bromeliad, new) brought a very handsome exhibit in the Vriesia hieroglyphica variegata of M. L. Mullie, of Saffelaere, which secured the 1st prize. Its handsome green foliage, in addition to the purple wavy transverse bars of the type, was striped with white.

M. A. de Smet secured the Medal for a new Bromeliad not yet in commerce, with the handsome Nidularium medio-pictum.

ANTHURIUMS AND OTHER AROIDS,

always form a fine feature at the Ghent Quinquennial, and they have never been seen to better advantage than at the recent show. All the exhibits were good, and from a collector's point of view, some of the smaller in the collection the most meritorious.

In Class 146 (twenty-five Anthuriums), M. A. de Smet worthily secured the "*œuvre d'art*" which formed the 1st prize; M. Louis de Smet-Duvivier taking the Gold Medal.

For twenty-five Anthurium Scherzerianum varieties, M. A. de Smet was again successful in taking 1st prize.

In Class 151 (collection of twenty Anthurium Andreanum varieties), the popular President of the Society, M. le Comte de Kerchove de Denterghem secured the Gold Medal with a very varied and brilliant collection. And the numerous other classes were well contested; M. A de Smet of Ledeberg being well to the front in most classes.

The Devansaye prizes for the best seedling Anthurium went to the Société Horticole Gantoise; for thirty Aroids to the Société Anonyme L. van Houtte, Père; for a specimen Anthurium with ornamental foliage, to Le Comte de Kerchove de Denterghem, for an enormous Anthurium Hookerianum; for ten Dieffenbachias to M. Draps-Dom of Laeken; for fifty specimen Caladiums to La Société Anonyme L. van Houtte Père; and for twenty five Caladiums to the same firm, who showed very finely-grown specimens throughout.

CLIANTHUS DAMPIERI.

A group of plants of Clianthus Dampieri shown by M. E. George, of Lancy, near Geneva, Switzerland, were the most magnificent and abundantly flowered examples of this species we have seen, and they caused frequent comments by exhibitors. The vigorous growth of the plants was striking, and a small specimen in a pan had thirty trusses of bloom open upon it; whilst another, a standard 1½ foot high, bore twenty trusses already open. The usual plant used for grafting the Clianthus upon is Colutea arborescens, but it was said by some that in this case a different stock had been used. There is much curiosity to know the name of that stock.

ASPARAGUS.

M. Barnard Spae, Coupure, Ghent, showed a number of Asparagus in Class 113, including A. tenuissimus, A. plumosus, A. p. nanus, A. medius, A. retrofractus, A. boreus, A. myriocladus, A. Sprengeri, A. tenuissimus viridis, A. lucidus, A. Sieberianus, A. crispus, and A. Duchesnei.

STRELITZIAS.

The 1st prize was awarded to the Baronne de St. Genois des Mottes, of Melle, for four grand plants, being two each of S. regina and S. juncea, one of the former having nine spikes, with finely-coloured flowers; the latter is a most distinct plant, some 8 feet in height, with foliage similar to that of the true Bulrush, but it is not evidently free-flowering.

NEW HOLLAND PLANTS.

These hardwood greenhouse flowering plants, known under the above rather misleading name, are now rarely seen in England in such excellent condition as they are shown at Ghent. The best exhibit of twelve plants of Acacia, Mimosa, Cytisus, and Genista, was from M. E. Collumbien, of Meirelbeke, whose examples were Mimosa longifolia, M. paradoxa, Cytisus elegans, C. racemosus, C. r. elegans, Genista Andreana, Acacia grandis and A. verticillata. M. A. Cornelis, of the same place, won 2nd prize.

The best lot of twelve plants of Genista alba and præcox was shown by M. F. van Driessche-Leys; and M. E. Bedinghaus had the best fifteen plants of Erica.

A striking illustration of New Holland plants was furnished by an exhibit of thirty specimens from Madame Osterrieth, an amateur of Antwerp, although it contained several plants that in England would not be classed under the above heading. A similar class for nurserymen was won by M. Bloeykens, of Meirelbeke.

In Class 301 for twenty well-flowered plants, there were three very good collections. The 1st prize was won by M. E. Bedingeaus, whose plants were of exactly the type most useful for commercial purposes. M. E. Bedingeaus won another 1st prize for twelve plants, in which each specimen was required to be grown upon a single stem.

In a class for twenty plants of Boronia elatior, the 1st prize was awarded to M. Th. Piens, of Melle, who had perfect plants about 3 feet high, of the usual mop-headed standard type. These were rightly preferred to another group in which the plants had been trained in the form of pyramids, 5 or 6 feet high. Although these were well grown and fairly well bloomed, they represented a form of training unsuited to the plant, and to trade requirements. These plants were shown by M. G. Gyzelinck.

In the following class in which collections of ten plants of Boronia elatior were shown, MM. De Deene et Vermeersch, of Evergem, gained 1st prize.

The 1st prize for the most beautiful lot of Acacia paradoxa, was awarded to M. E. Collumbien, of Meirelbeke; and the 2nd prize to M. A. Cornelis, of the same place. Both lots were very good, but the 2nd prize collection made the better display, being more

fully in bloom. There were numerous classes for well-cultivated single specimens of "New Holland" and other greenhouse flowering plants.

ORANGES.

The exhibits of Otaheite Oranges (a variety of Citrus sinensis) excelled anything of the kind we have seen in England, from the point of view of cultivation. They were nearly perfect specimens, and bore an abundant crop of richly coloured, perfectly developed fruits. In a competition for the best collection of twenty-five plants, the 1st prize was won by Madame V. Snoeck, of Geodbrugge; the 2nd prize by M. Verhoeven, of Destelbergen; the 3rd prize by M. Schatteman; and the 4th prize by M. A. Snoeck Michiels, of Gendbrugge.

HYACINTHS.

It being late for the exhibition of Hyacinths and Tulips in pots, there were not many collections. Messrs. Byvoet Bros., Overveen, Haarlem, Holland, who usually stage fine exhibits at Ghent, won 1st prizes for a collection of 150 pots, each containing three Hyacinths, and representing together fifty varieties, and for a collection of 100 plants in 100 pots. The 2nd prize in the latter class was taken by a collection from M. Roozen, of Overveen, also near Haarlem.

M. LEMOINE'S DEUTZIAS.

MM. Lemoine et Fils, of Nancy, France, exhibited a group of Deutzias, in which the fine hybrids raised at Nancy were comparable with each other. One of the finest was D. Kalmiæflora, with large white flowers tinted with pink. D. gracilis eximia, nearly white, was also very good; and particularly D. Lemoinei Avalanche, which has large white flowers of pure white, that might well be used in place of Orange-blossoms, if these are not obtainable in sufficient quantity; D. gracilis rosea and D. Lemoinei Boule de Neige are other varieties that may be unreservedly recommended.

DECORATIVE PLANTS AND CUT FLOWER CLASSES.

For a basket furnished with foliage plants for room decoration, M. de Brie, of Paris, was 1st, with a most tasteful exhibit some 6 feet in height, consisting of tall, single stemmed, well coloured plants of Crotons, Palms, Ferns, and Draceenas; the ribbon used was, however, of too dark a tint, and generally objectionable.

For a vase of cut flowers, the same exhibitor was 1st with a fine arrangement of Lilacs, Roses, Carnations, and Richardia Ethiotiana, freely done.

M. de Brie was again 1st with a huge basket of white Lilac and white Lilies, a superb exhibit in every sense, and well worthy of the special commendation of the jury.

For a basket of plants in flower, furnished for room decoration, M. de Brie staged an arrangement of small Azaleas, most tastefully put together, and including a good choice of colour.

For a basket of Orchid flowers M. de Brie was again 1st with a very light and graceful arrangement of Cattleyas, Oncidiums, Odontoglossums, Phalænopsis, Vandas, &c., so arranged as not to show the basket except in the slightest degree (a Bamboo frame would be a better term than a basket). With sprays and button-holes M. de Brie was again unsurpassed, but in this class the English florists could easily have beaten him. In fig. 115, p. 283, we have reproduced a photograph of M. de Brie's artistic exhibit of cut flowers in various devices.

The 1st prize for a decorated dinner-table was awarded to M. Van den Heede, of Ghent, for a rather formal arrangement of Cattleyas and pale blue Violets, the colours not blending well, whilst too little foliage was employed. In another basket arrangement, this latter exhibitor made a unique and praiseworthy exhibit with the flowering spikes of Chamærops Fortunei, and blooms of Amaryllis and Carnations.

TWO NEW PLANTS.

A plant of Pæonia lutea (Franchet) was shown. It is a very pretty species, with yellow, cup-shaped, sweet-scented flowers, with a little red colour at the base of the stamens. The species was mentioned on p. 269 of our last issue, and has been awarded a First-class Certificate by the Royal Horticultural Society of London.

Passiflora maculifolia, from Venezuela, was shown by MM. Chantrier Frères, Mortefontaine, France. This species was illustrated and described in the *Gardeners' Chronicle*, November 8, 1902. The flowers are small and whitish.

MISCELLANEOUS EXHIBITS.

In the section for forced trees and plants, there was not much competition, and the exhibits, especially those of Roses in pots, were not so good as we have them in England.

Among spring flowering plants, Messrs. Vilmorin, Andrieux & Cie., Paris, had the best group of fifty plants of herbaceous Calceolarias; and Messrs. R. P. Ker & Sons, Liverpool, won all the 1st prizes for Hippeastrums.

A good collection of forty Cinerarias was shown by M. F. de Smet, who excelled in this class the firm of Messrs. Vilmorin, Andrieux & Cie.

Cactaceous plants were shown well by M. F. de Laet, of Contich, who won 1st prizes for collections of fifty, and twenty-five plants respectively, also for twelve Euphorbias, and for twelve Cactus, Phyllocactus, and Epiphyllums in flower.

Conifers and other hardy shrubs and trees were shown out of doors, where there were several kinds of glasshouses on view, and other garden necessities.

A number of garden plans were shown in competitive classes, and prizes awarded to the best of them.

THE ARAUCARIA AT GHENT.

Araucarias, like Palms, are so common in Belgium that florists when using them for decoration seem unable to refrain from twisting coloured ribbons around the stems, apparently to distinguish them from the thousands of others that are merely commercial items. This attempt, though fashionable, is attended with a most unhappy effect, quite distasteful to English folk. We noticed a freely variegated variety of A. excelsa in the exhibition, which, when it is obtainable in quantity, may be considered sufficiently decorative, even in Belgium.

ENGLISH EXHIBITS.

The most important exhibit from Britain was undoubtedly the collection of new plants shown by Messrs. F. Sander & Sons, St. Albans, of which we have given illustrations. But next to these, a magnificent group of Hippeastrums (Amaryllis) shown by Messrs. R. P. Ker & Sons, Aigburth Nurseries, near Liverpool, were of remarkable quality and attractiveness, a variety named Exquisite being magnificent in colour. There was no exhibit of these plants at the show that in any way resembled them. The plants took 1st prizes in six distinct classes, and gained a Work of Art, a Gold Medal, and several Silver Medals. The exhibit was as fine as any we are accustomed to see in England, and consisted of varieties of the finest quality, showing perfect cultivation.

Messrs. H. Cannell & Sons, Swanley, Kent, exhibited about forty bouquets of flowers, illustrating their superb varieties of zonal Pelargoniums, which are remarkable for their large-sized, and brilliantly coloured flowers (Silver Medal).

Messrs. H. Low & Co., Bush Hill Nurseries, Enfield, exhibited the new Schizanthus wisetonensis, the firm has familiarised in England (Silver Medal).

JURORS FROM BRITAIN.

The names of the jurors who attended from Britain are as follows:—Lord Redesdale (President), and Messrs. R. A. Rolfe (Kew), T. Bevan (National Chrysanthemum Society), J. Bruckhaus (Twickenham), W. Bull (Chelsea), De Bary Crawshay, K. Drost, Geo. Gordon, C. H. Curtis (*Gardeners' Magazine*), J. Heal (Messrs. J. Veitch & Sons), J. Hudson, C. C. Hurst, R. W. Ker (Liverpool), F. G. Lloyd, H. S. Low, F. W. Moore (Glasnevin), J. O'Brien, C. E. Pearson (Chilwell Nurseries), H. J. Pearson (Foster & Pearson), R. Hooper Pearson (*Gardeners' Chronicle*), F. Sander (St. Albans), W. Stevens, W. Thompson (Stone), A. Turner (Slough), W. Watson (Kew), J. Weathers, H. Witty (Nat. Chrys. Soc.), and Brian Wynne. Several gentlemen who were invited, were unable to be present.

JUDGES IN THE CLASSES FOR ORCHIDS.

The following is a complete list of the judges in the Orchid classes. The classes were divided into three sections, and the judges were as follows:—

Section 2. Mr. J. O'Brien (President), Dr. F. Kränzlin (Secretary), and Messrs. De Bary Crawshay, du Trieu de Terdonck, and C. C. Hurst.

Section 3. Mr. R. A. Rolfe (President), M. Duval (Secretary), and Messrs. J. Lambeau, A. Scalarandis, J. Heal, W. Stevens, A. Cogniaux, R. Martin Cahuzac, T. Pauwels, and D. Massange de Louvrex.

Section 4. M. Linden (President), Dr. Pfitzer (Secretary), and Messrs. W. Thompson, G. Mayne, and F. Lloyd.

BOTANICAL SECTION.

M. Adolphe Van den Heede, of Lille, France, showed a number of plants, illustrating experiments he had made in the matter of grafting different species of plants upon each other. We noticed amongst other instances those following:—Begonia semperflorens fl.-pl. on B. Haageana, Begonia Gloire de Lorraine on B. alba picta, Ileya bella on H. carnosa fol. var.; Dracæna Sanderiana on D. congesta discolor; Iresine Lindeni on a variety of Coleus; Thyrsacanthus rutilans on Strobilanthes Dyerianus, Cissus discolor on Ampelopsis Veitchi (apparently not successful); Pisum sativum, on Phaseolus vulgaris; Clianthus Dampieri, on Colutea arborescens; Ruellia macrantha, on Justicia rosea; and Centropogon Lucyanus (Campanulaceæ), on Dermatobotrys Saundersii (Scrophulariaceæ)! M. Van den Heede also showed some instances of the utilisation of dead Tree-Ferns, by planting upon them such species as Epiphyllums, Bilbergias, Begonias, Ferns, Orchids, &c. The most curious of M. Van den Heede's exhibit, however, were some sealed glass cases containing plants, and showing how they may be cultivated without any trouble whatever, even that of affording water. An Echinocactus was planted in sandy peat in a case on May 23, 1901, which was afterwards sealed, and appeared in excellent condition; Rhipsalis articulata was planted on May 29, 1902. This system is certainly an illustration of *une culture facile*.

Prof. Emile Laurent, of the Institut Agricole de l'Etat Gembloux, showed a number of plants originally introduced from the Congo. They included Cyathea congoensis, Sanseveria longifolia, Polypodium punctatum, Platycerium coogoense, Musa sapientum var. sanguinea, with reddish-purple leaves (fig. 124, *Gardeners' Chronicle*, May 25, 1901); Euphorbia Ledieni, bearing two seed-pods; Landolphia comorensis var. florida, several species of Coffea, Platycerium stemmaria or æthiopica, P. angolense (see fig. 62 in *Gardeners Chronicle*, March 12, 1898), &c. Prof. E. Laurent also exhibited specimens of species of rubber-yielding plants of the Congo, and others of economic value.

Amongst the exhibits illustrating parasites and diseases of plants were Pelargoniums with Cuscuta growing upon them. There were also illustrations of the use of certain manures, and their stimulating effect upon the growth of the host-plant, or of the parasite, and showing how the host-plant may be rendered almost immune from attack. The use of phosphates, for instance, materially hinders the growth of the Cuscuta on Pelargoniums.

Real specimens of insects and moths injurious to fruit trees and vegetables, and physiological specimens of plants preserved in spirits, were amongst the exhibits in the botanical section, but there were so many living plants having attractions for the visitors, that we fear these exhibits, so full of educational interest, may not have been given the attention they deserved.

SYMPATHETIC MESSAGE TO MRS. BARRON.

Upon the initiative of Mr. B. Wynne and other friends of the late Archibald Barron, a cablegram was despatched from Ghent conveying condolences to Mrs. Barron and family. The names of most of the British visitors were appended to this, and regret was felt that it was impossible for them to be present at the interment.

ROYAL HORTICULTURAL.

Narcissus Committee.

(*Continued from p. 270.*)

April 21.—The most extensive group came from Messrs. R. H. Bath, Ltd., Wisbech, and in this we noted many good things, Mme. de Graaff being excellent, and in great quantity; while maximus, Wm. Wilks, Nelsoni aurantius, Sulphur Phœnix, the giant Weardale Perfection, and many more, were all well shown (Silver Flora Medal).

Quite a choice lot of varieties, though more strongly representative of Incomparabilis and Leedsii kinds, came from R. H. Darlington, Esq., Potter's Bar. In this exhibit we selected N. poeticus poetarum, N. Queen of Spain, and N. Maxim, as being in fine form. There were some thirty or more kinds (Silver Flora Medal).

Messrs. Hogg & Robertson, Dublin, showed Tulips and Daffodils in great variety, fine flowers of the former, many of great size, and rich in colour. The Narcissus were in splendid condition, more particularly the white Ajax Mrs. H. D. Betteridge and Lady Arnott are fine representatives of N. incomparabilis, to which group also belong Brigadier and Stella superba. In the Leedsii section we take White Wings and White Lady, both chaste and beautiful in their way. There was a host of older varieties, and the superior culture of the flowers shown was very noteworthy (Silver Banksian Medal).

Messrs. Jas. Veitch & Sons, Ltd., Chelsea, showed a fine group, amongst which was noticeable the rich yellow of the double incomparabilis, affording quite an unusual glow of colour to the group. Others very fine were Glory of Leyden, Emperor, Barri conspicuus, and indeed a large lot of the standard sorts were here in large numbers (Silver Banksian Medal).

Yet another group of choice kinds was that from Messrs. Barr & Sons, Covent Garden, some of the varieties shown will be seen under "Awards," in our last issue, p. 270; while of other good things we select Cygnet, perhaps the most beautifully refined and chaste white trumpet or pale bicolor we have observed this season. It is a remarkably finely-finished flower of great delicacy of tint in perianth and crown. Loveliness, White Ajax, Osiris, in the same set were splendid blooms; while Queen Christiana was a notable bicolor of large size. Others that may be named were Apricot Phœnix, and Maggie May, beautiful as ever. Apart from these, many good varieties were shown in considerable profusion. The Tulips were exceptionally good.

Scientific Committee.

Present: Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Odell, Holmes, Saunders, Massee, and Chittenden; Drs. Cooke and Rendle; Prof. Boulger, Revs. Wilks and Henslow, hon. sec.

Aroids, coloured foliage.—Sir Trevor Lawrence, Bart., and Mr. Odell, exhibited examples of yellow-spathed Richardias with leaves half-yellow. As the upper half of the leaf was spotted, it was suggestive of a possible

dissociation of hybrid characters. Sir TREVOR also sent a specimen of Anthurium Scherzerianum with a leaf half crimson and half green.

Argotti Botanic Gardens, Malta.—Dr. DEBONO sent an account of numerous additions, &c., to these gardens, which will form a supplement to the paper upon Malta in the "Journal" of the Society.

Narcissus with a second corona.—Flowers were sent to the last meeting by Mr. R. O. BACKHOUSE, Sutton Court, near Hereford, upon which Dr. MASTERS reported as follows: "The flowers show a series of outgrowths from the outer surface of the cup or corona. They resemble those of 'frilled' Daffodils; but in this case the supplementary growths are at the base only, and are tubular or trumpet-shaped, the mouth of the trumpet being directed outwards. In some cases the outgrowths are so numerous and so regular that they constitute a second corona on the outside of the normal one, thus resembling the 'cata corolla' of some Gloxinias."

Crane-Fly Grubs.—Grubs were sent by Mr. MILLBURN from Bath, also known as those of "Daddy Long-legs." Mr. Saunders observed that "they are sometimes known as 'Leather-jackets,' from the toughness of the skin, which prevents insecticides from affecting them. A strong solution of common salt or nitrate of soda is distasteful to them, and helps the plants they are attacking. These grubs often come to the surface at night, and subsequently take shelter under turf, boards, &c. If slates and tiles be laid about, they should be turned over in the morning. Various birds —e.g., rooks, starlings, plovers, partridges, and pheasants—devour them. Towards autumn, when the flies are about, rolling the grass will kill numbers of them.

CHESTER PAXTON.

APRIL 15, 16.—A two days' exhibition, arranged by the members of this society, was held in the Grosvenor Museum, when some remarkably fine collections of Daffodils and other spring flowering plants were staged. The whole of the exhibits were of a non-competitive character, the principal collections being sent by the President, Capt. MacGillycuddy, Bache Hall (gr., Mr. E. Stubbs); Dr. Mules, The Old Parsonage, Gresford; Mrs. Townsend Ince, Christleton Hall (gr., Mr. John Weaver); Miss Humberston, Newton Hall (gr., Mr. R. Wakefield); R. Fraser, Esq., Greenbank (gr., Mr. Reeves); and Hugh Aldersey, Esq., Aldersey Hall (gr., Mr. Chisholm), whose Narcissi were particularly fine.

Messrs. Dicksons, nurserymen, Chester, staged a fine lot of Daffodils, conspicuous amongst them being Sir Watkin. Messrs. McHattie & Co., Chester, were also well represented by a fine collection of Daffodils and Tulips.

MIDLAND DAFFODIL.

APRIL 16.—A very fine exhibition of Daffodils was brought together on this occasion in the show house of the Botanical Gardens, Edgbaston. It is not too much to say it was the finest exhibition of the flower held in the country, and much of its success was due to the strenuous efforts of Mr. Robert Sydenham. To this show came experts from all parts of the country: Miss CURRIE was there from Lismore, Ireland; Messrs. HOGG & ROBERTSON from Dublin; and Messrs. REAMSBOTTOM & Co., Geashill, King's County, had a collection of their glorious Alderborough Anemones. The leading trade and amateur cultivators of Daffodils were found to be exhibiting, and many new varieties were staged, and a large number of awards were made to novelties by a strong committee of experts. One of the features of the meeting was the number of beautiful new white trumpet varieties staged.

There was as usual the midday luncheon to the judges and exhibitors, at which Prof. Hillhouse, M.A., the chairman of the committee presided; and in the evening Messrs. R. Sydenham and John Pope entertained a large company at dinner, Mr. John Pope acting as chairman. A conference meeting followed the dinner, at which Prof. Hillhouse unfolded a new and novel scheme of classification, followed by Mr. P. R. Barry, who propounded a scheme of classification prepared by Mr. F. W. Burbidge and himself. As the hour was late, any consideration of the details of both schemes was adjourned for future consideration.

CUT BLOOMS.

The leading class was for a collection of Daffodils, in fifty varieties, N. Tazetta excluded, and to include the three groups. There were six competitors, and as the judges were engaged a long time in making their awards, it may be assumed that the competition was exceedingly close. Some finely developed flowers were staged. Mrs. BERKELEY, Spetchley Park, Worcester, was awarded the 1st prize for a collection containing many fine blooms having much novelty of character. The large trumpet varieties were represented by Glory of Leyden, King Alfred, Lady Mary Boscawen, Earl Grey, Rev. Chas. Digby, Countess Grey, Ducat, and Genoa; the medio-coronati by Solfaterre, Geo. Nicholson, Brigadier, Will Scarlett, Adjutant, Dorothy Yorke, Peach, Nelsoni, Aurantiacus, &c.; the parvi-coronati, Sensation, Braia, Dante, Orifiamme, Cressett, Albatross, Valeria, Flora Wilson, Tasso, Curlew, Magdalene de Graaf, &c. Messrs. POPE & SON, King's Norton, were an excellent 2nd, having finely developed examples of magni-coronati Madame Plemp, J. B. M. Camm, Emperor, Weardale Perfection, Captain Nelson, A Mere Seedling, Glory of Noordwijk, Lady Margaret Boscawen, King Alfred, &c.; medio-coronati, Lucifer, Stella, Superba, Dorothy Yorke, Duchess of Westminster, Strongbow, Will Scarlett, Cristata, C. J. Backhouse, &c.; parvi-coronati, Almira, Flora Wilson, Orifiamme, Crown Prince, &c.

Miss WILLMOTT, Warley Lodge, Great Warley, was the only exhibitor of a collection of seedlings not in commerce, staging magni-coronati varieties, Mrs. Berkeley, white perianth and cream trumpet; Rev. C. Digby, white, pale yellow trumpet; Countess Grey, white and primrose; Earl Grey, a deep primrose self; Rev. C. Wolley-Dod, large creamy white, with deep yellow trumpet; Warley Magna, white; Eleanor Berkeley, white; Cecil Rhodes, yellow; Lilian, white and primrose. Of medio-coronati, Moonstone, white; Aladdin, white with bright-yellow open cup; Corydon, white and primrose; and of the small-cupped section, Lovelace, Rochester, Cressett, Incognito, Firefly, the cup rich orange-scarlet; and Rhymester.

Class 3 was for twelve true trumpet varieties, and there was a good competition, Messrs. POPE & SON, nurserymen, King's Norton, taking the 1st prize with fine examples of Glory of Leyden, King's Norton, Glory of Noordwijk, King Alfred, Weardale Perfection, Emperor, Madame de Graaf, Teniers, J. B. M. Camm, Maximus, "A Mere Seedling," and Mrs. Camm. All shown in this class had to be in commerce. A protest was entered against this award, on the ground that King's Norton is not in commerce; to this Mr. POPE replied that he was prepared to sell a bulb of it to any one who would give him his price. The matter was much debated by the Committee; eventually it was understood that the award was to stand, but that there should be another season, a more definite meaning given to the term "not in commerce." Mr. H. B. YOUNG, Metheringham, Lincoln, was an admirable 2nd.

There was a good competition in the class for twelve bunches of medio-coronati varieties, Messrs. POPE & SON again taking the 1st prize with finely finished blooms of Lady M. Boscawen, White Queen, Torch, Sir Watkin, Dorothy Yorke, Marena, &c.; Mr. H. B. YOUNG, came 2nd, his leading flowers were Gloria Mundi, Crown Prince, Duchess of Westminster, &c.

With six varieties, Mr. J. H. HARTELL, Olton, was 1st, his varieties were Stella superba, Duchess of Westminster, Lulworth, Flora Wilson, White Lady, and Mrs. Langtry; Mr. W. B. LATHAM, Botanical Gardens, was a close 2nd.

With six bunches of parvi-coronati, Mr. H. B. YOUNG was again placed 1st, having charming examples of Model, Agnes Barr, Vanessa, &c.

Messrs. POPE & SON took the 1st prize for six varieties of the true N. poeticus, having examples of Horner, Dante, Almira, Poetarum, Poem, and ornatus.

Then followed three classes in which the varieties shown were not to exceed catalogue price of 10*s.* per dozen, and one in which the price was not to exceed 5*s.* per dozen. In these the growers of small collections competed, and the flowers shown were popular standard varieties. The most successful exhibitors were Mr. R. C. CARTWRIGHT, King's Norton; and the Rev. T. BUNCOMBE, Ruabon.

TULIPS: A decided novelty in the cut flower classes was one for nine bunches of Tulips, with not more than six blooms in each bunch. Mr. R. C. CARTWRIGHT took the 1st prize with such fine varieties as Unique, in perfect character; the red and white forms of Joost van Vondel, Keizer's Kroon, Fabiola, Mons. Tresor, a fine yellow self; Duchesse de Parma, Cerise Gris de Lin, and Prince of Austria. Mr. W. B. LATHAM was 2nd, having very good blooms of much the same varieties. Another class was for six bunches of Spanish Iris; Mr. R. C. CARTWRIGHT was the only exhibitor, but with very pretty varieties.

PLANTS IN POTS.

These consisted of Daffodils and Polyanthus Narcissi, also Tulips; the pots in each class limited to 7 inches in diameter. The best twelve pots of Daffodils were from Mr. R. C. CARTWRIGHT, and consisted of leading well-known varieties, the plants well grown and flowered. Mr. R. SYDENHAM took the 2nd prize. With six pots, Mr. W. B. LATHAM was placed 1st, and Mr. J. SCEANEY, Harborne, 2nd.

Mr. LATHAM had the best six Polyanthus Narcissus, Mr. CARTWRIGHT coming 2nd.

Early Tulips were, as they always are, a charming feature at Birmingham, well grown, and grandly bloomed. Mr. R. C. CARTWRIGHT was 1st, with superb examples of Golden Queen, a fine new variety. Mr. J. A. KENRICK, Edgbaston, was 2nd, also with finely-developed flowers of Queen of the Netherlands, a charming light variety; Dusart, Keizer's Kroon, &c.

Some excellent Lily of the Valley in pots was shown by Mr. J. A. KENRICK.

FLORAL DECORATIONS.

These were all formed of Daffodils, and consisted of groups of the flower on small round tables, Messrs. POPE & SON taking the 1st prize with a neat and effective arrangement; and they were also 1st with a shower bouquet, staging one of a highly artistic character.

The premier magni-coronati variety was King Alfred, shown by Messrs. Pope & Son; the premier medio-coronati, White Queen, shown by the same firm; the premier parvi coronati was Southern Star, from Mrs. Berkeley white, with yellow cup, bordered with deep orange.

Silver Medals were awarded to the following new varieties:—Magni-coronati, Francesca, a beautiful white self from Miss Willmott, who also gained the same award for medio-coronati; Robert Berkeley, white, with sulphur cup. The same award was made to Miss Willmott, for parvi-coronati Incognita, white with deep yellow cup.

Medals of various values were awarded to miscellaneous exhibits:—To the Rev. G. H. Engleheart, for a collection of seedlings of great merit; to Miss Currie, Lismore, for a collection of Daffodils of fine quality; to Messrs. Barr & Son, King Street, Covent Garden, for a large collection of Daffodils, which included several very fine named varieties; to Messrs. Hogg & Robertson, nurserymen, Dublin, for Daffodils, and very fine Tulips; to Messrs. J. R. Pearson & Sons, Lowdham Nurseries, for a representative collection of Daffodils; to Mr. J. W. Cross, Wisbech, and Messrs. Dickson, Ltd., Cheshire, for the same; to Mr. R. H. Bath (Ltd.), Wisbech, for Daffodils; to Messrs. Simpson & Son, Edghaston, for Daffodils in pots; to Messrs. Perkins & Son, nurserymen, Coventry, for exquisite floral decorations; to Messrs. Hewitt & Co., for decorations and Roses; to Messrs. Reamsbottom & Co., Geashill, King's County, for Alderborough Anemones; to Mr. J. T. Gilbert, Bourne, also for Anemones; to Messrs. J. H. White & Son, Spalding, for Daffodils; to Mr. R. Sydenham, for Daffodils and Tulips, &c.

CROYDON AND DISTRICT.

EXHIBITION OF SPRING FLOWERS AND PLANTS.

APRIL 22.—The Croydon and District Horticultural Mutual Improvement Society have every reason to be pleased with its third annual exhibition of spring flowers and plants, which was held in the Art Galleries, Park Lane, Croydon, on the above date.

Amongst some of the most prominent groups was that of Mr. M. E. Mills, gr. to F. LLOYD, Esq., Coombe House, who had a collection of herbaceous plants, including some fine specimens of the Narcissus and Tulips, and a fine collection of Primula obconica.

Mr. J. Dingwall, gr. to F. STANLEY, Esq., J.P., of Cumberlow, South Norwood, had a tastefully-arranged group of flowers and plants.

Mr. A. May, gr. to WICKHAM NOAKES, Esq., Selsdon Park, had a collection of Cinerarias.

Nurserymen made a good display.

CHESTERFIELD CHRYSANTHEMUM

APRIL 22.—The above Society held its usual show of spring flowers at Thornfield House on the foregoing date, this being the first occasion on which a president of the Society, J. E. Clayton, Esq., has resided in the borough, previous exhibitions having been held in various gardens surrounding the town. The leading patrons of the Society in the district, who are owners of large gardens, either contributed groups of flowering plants or set up cut flowers, making altogether a bright and attractive show.

The hon. sec., Mr. W. R. Bloxham, gr. to R. F. MILLS, Esq., Tapton Grove, had a tasteful group at one end of the tent, in which some good plants of Cineraria stellata, Cyclamens, Spiræas, &c., were conspicuous. Mr. Bloxham also occupied about 20 feet run of tabling with cut flowers, Narcissi, Tulips, &c.

The growing popularity of Cineraria stellata was noticeable throughout the show, Mr. S. MAY, of Ashgate Road, showing them in quantity, in addition to many fine forms of Dianthus Heddewegi, Spiræas, Gloxinias, &c.

Mr. T. J. Nelson, gr. to Mrs. A. BARNES, Ashgate Lodge, had a nice vigorous plant of Medinella magnifica, carrying twenty-five trusses of bloom, as a centrepiece of a group of good subjects, viz., Lilacs M. Lemoine and alba virginalis, Carnations, Viburnums, Gheot Azaleas, Anthuriums, Cattleyas, Dendrobium nobile, and Begonia Gloire de Lorraine.

From MAURICE DEACON, Esq., Whittington House (gr., Mr. Matthew), came an attractive group of Azalea mollis in much variety, and a quantity of Tulips in pots. Deutzia gracilis, Heuchera sanguinea, and a batch of C. stellata were sent by the Rev. H. N. BURDEN, from Whittington Hall (gr., Mr. Parks). Mr. Keniston, gr. to H. WESTLAKE, Esq., also showed Begonia Gloire de Lorraine, Azalea mollis, zonal Pelargoniums, &c.

OSCAR MASON, Esq. (gr., Mr. H. Wood), Dunston Hall, sent a group of Cannas, Spiræas, Primula obconica, and zonal Pelargoniums, in a setting of Ferns. Mr. Cotterill, gr. to A. T. H. BARNES, Esq., West House, showed Arums, Tulips, and Ferns.

Mrs. Edmund Barnes, Ashgate House (gr , Mr. J. Adlington), showed cut flowers of Narcissus and blue Cineraria stellata, which had a pleasing effect.

Messrs. J. R. Pearson & Sons, of Lowdham, Notts, made an imposing display of Narcissi, staging 150 bunches of well-grown, clean blooms, in about sixty varieties, Weardale Perfection, Lulworth, Madame de Graaff, Gloria Mundi, and Albatross being in fine condition. The society's Certificate of Merit was awarded this exhibit.

Messrs. R. W. Proctor & Sons, Chesterfield, showed floral designs, and a collection of Pansies. Mr. J. H. Wilson, Handsworth, Sheffield, showed G. F. Wilson and other Primroses, and likewise Auriculas.

The ex-Mayor, Councillor Spooner, exhibited eight pots of Royal Sovereign Strawberry. Mr. A. Shentall, of Gluman Gate, again contributed a quantity of flowers for sale at the stall, which was managed by gardeners' wives and daughters. *W. P.*

HEREFORD & WEST OF ENGLAND ROSE.

April 24.—The annual meeting of the Hereford and West of England Rose Society was held at Hereford on this date, the Rev. C. H. Bulmer presiding. The financial statement showed that the income of the past year amounted to £223 5*s.* 5*d.*, and after deducting expenditure (the principal item of which was £102 13*s.* 10*d.* for prizes) there remained a balance of £41 13*s.* 10*d.* Mr. T. Carver said the subscriptions amounted to £7 more than in the previous year, and the gate-money to £18 more. The chairman said he thought such a financial statement was highly satisfactory, and they ought to be very grateful to their Hon. Secretary (the Rev. Preb. Ashley). A Committee of Management was elected, with Hon. Secretary, Rev. Preb. G. E. Ashley, Stretton Rectory, Hereford; Hon. Assistant Secretary, Mr. T. Carver, Hereford; Hon. Treasurer, Mr. A. C. Harmer, Hereford; Hon. Manager of Exhibition, Mr. H. C. Beddoe, Hereford; Hon. Assistant Manager of Exhibition, Mr. G. Holloway, Hereford.

Obituary.

Andrew Pettigrew.—Another famous gardener has fallen from the ranks; in this case, a victim to that insidious and hopeless disease, cancer. Mr. Pettigrew, gardener to the Marquis of Bute, at Cardiff Castle, would have been seventy years of age had he lived until August 12 next, and his appearance a few months ago seemed to warrant the belief that he would be able to discharge his important duties for some years to come. About three months since he was overtaken by illness, and as the weeks passed he became weaker, until it was painfully obvious that the disease was a fatal one, and that hopes of his restoration to health were futile. The end came at 5 o'clock on Sunday morning, April 26, after deceased had lain twelve weeks in bed, during most of which time he was happily comparatively free from severe pain.

Andrew Pettigrew commenced his gardening career at Craigie House, Ayrshire, fifty-eight years ago, when twelve years of age. At fifteen, he removed to Dalblain House, in the same county, and served an apprenticeship of three years, after which he served at Rozelle House until reaching the age of twenty. Leaving Rozelle, the young man spent a few months in the Botanic Gardens, Sheffield, then a period at Minard Castle, and subsequently a year at Drumlanrig, under the late Mr. McIntosh. The probation at Drumlanrig was followed by a period at Stoke Farm, and at Daylesford House, Worcestershire, in the capacity of foreman.

After serving a time at Rollisson's Nursery, Mr. Pettigrew was appointed head gardener to the late Charles Meekin, at Richings Park, Buckinghamshire, where he remained for six years, and was a frequent correspondent of this journal. At this time deceased entered the service of the late Lord Bute at Dumfries House, Ayrshire, and after serving there for six years, at the earnest request of his lordship, he again removed south to take charge of Lord Bute's more important garden at Cardiff Castle, where he remained for thirty years. Encouraged by his lordship, Mr. Pettigrew soon commenced to remodel the kitchen gardens, and converted a large area of waste and scrubby land around the Castle into a beautiful pleasure-ground.

Mr. Pettigrew was an enthusiastic fruit-grower, and those who have seen his hardy fruit trees, Melons, and pot Vines, will not forget them. The pyramidal Pear-trees at Cardiff were among the most perfect specimens in these Islands. The value and quality of Foster's Seedling Grape as an early variety were nowhere better demonstrated than in the vineries at Cardiff.

One of the principal enterprises carried out by Mr. Pettigrew at Cardiff, at the request of the late Lord Bute, was that of planting two vineyards, one at Castle Coch, commenced about twenty-seven years ago, and another at Swanbridge a few years later, on a slope several hundred yards distant from the sea. From the

The Late Andrew Pettigrew, Gardener to the Marquis of Bute

produce of these vineyards the deceased gardener manufactured a wine that is now on the market, samples of which have been sold at so high a price as 115*s.* per dozen bottles. The first wine was made in 1877, and amounted to forty gallons; but in 1893, an exceptionally good season, and following extensive planting, as much as forty hogsheads of excellent wine were manufactured. An account of this wine industry will be found in *Gardeners' Chronicle*, Sept. 15, 1894, in the shape of a report of a lecture delivered upon the subject by Mr. Pettigrew before the Royal Horticultural Society on the previous Tuesday. A detailed description of the gardens at Cardiff Castle, and of the cultivation practised in the vineyards, was published in *Gardeners' Chronicle* for September 9, 1893.

Latterly, owing to the purchase of Cathays Park by the municipal authorities, most of the kitchen gardens laid out by Mr. Pettigrew have been destroyed, and arrangements were to be made for forming new ones.

Until late years, deceased took a deep interest in the welfare of the young men who came under his influence, helping them in drawing plans, and in the study of botany. When a boy in his teens he began to learn British plants by means of the old Linnean system, and gathered together a fine collection of specimens from many parts of the country.

Mr. Pettigrew was very fond of reading, and greatly admired the works of Sir Walter Scott and Robert Burns. He was elected President of the Cardiff Burns Society last Christmas. His favourite recreation was the old Scottish game of bowls, and he founded at Cardiff a society that has just spent a sum of £300 in the improvement of its grounds.

Deceased was a gardener of the old school, who was above all else a good kitchen gardener and fruit grower, and considered that these two departments should receive more attention by young men than is now common. He was a strict disciplinarian, and many a man now holding an important position is the better for his teaching in punctuality and thrift. Gardening was not merely his calling, but he lived it and thought it continually. All who had the fortune to know him personally, and especially the large number of young men, including the present writer, who learnt some of their lessons in his school, will deeply regret that his life has been shortened by disease. They will also feel profound sympathy for Mrs. Pettigrew, for all participated in her overflowing kindness.

It may be recalled with pathetic interest that Andrew Pettigrew's last communication to these pages was one which recorded in touching words the death of his friend, Ralph Crossling, of Penarth.

Deceased leaves a widow, one daughter, and three sons. The sons are William Wallace, Superintendent of the Parks and Open Spaces under the Cardiff County Council; Hugh, head gardener to Lord Windsor, at St. Fagan's Castle, Glamorganshire; and Andrew, head gardener to the same nobleman at Hewell Grange, Worcestershire. Each received training at Kew. *R. Hooper Pearson.*

Charles Darrah.—It is with much regret that we announce the death of Mr. Charles Darrah, which took place at his residence, Holly Point, Heaton Mersey, Manchester, last Friday evening. Mr. Darrah was known to the horticultural world as the possessor of a large collection of Cacti, plants in which he was greatly interested. Particulars of the "Holly Point" collection have at times appeared in the pages of the *Gardeners' Chronicle*, as well as photographs of some of the specimens.

ENQUIRY.

Can anyone tell me to what flower Browning refers in "May and Death?":—

"Only one little sight, one plant,
Weeds have in May, that starts up green
Save a sole streak, which, so to speak,
Is spring's blood, spilt its leaves between."

W. T.

TRADE NOTICE.

Mr. Ellis, head gardener to Mr. Stobart, J.P., for the last twenty-two years, has recently left that service to commence business together with his two sons as Florists, &c., at the Castle Gardens, Bishop Auckland, Durham.

Old Boots in Vine Borders.—I was asked to examine some old Vines recently, and found in the border many old boots and shoes. They had apparently been buried under the idea that they were of manurial value. Most of us have heard of the folly of burying carcases of animals in Vine borders, but I was not previously aware that their hides had been used for the purpose after being tanned and made into boots. *T. Coomber, Hendre Gardens, Monmouth.*

ANSWERS TO CORRESPONDENTS.

Box Edging Dying: *J. L.* Box is not readily killed, and we do not suppose that moisture in the soil is the cause. Kindly send a few plants for examination.

Cabbage: *N. D. P.* Ripening prematurely; nothing can be done.

Castor Oil Plants: *Aurelias.* These plants being practically perennials, under warm-house cultivation might be inarched or treated as attached cuttings in the same manner as long-legged Cordylines and Dracænas are made dwarfer; but care would have to be taken, as with those, not to sever the head before plenty of roots are emitted, which fact is readily ascertained, or makes itself observable. In the case of the top that died, you did not allow sufficient length of time for roots to form. If you notice roots on the Castor Oil plant, you may safely detach the head, cutting through the stem below the little pot. If there are many roots, you may shift the plant into a slightly bigger pot, and keep warm and close for a week or ten days. You might break the little pot instead of turning out the ball.

Cedar Trees: *G. E. S.* If you can localise the roots dig away the staple till you come down to them, and apply loam and leaf-mould respectively to the amount of ¾ and ¼, bringing up the soil to the former level, making the new soil quite firm. If the roots are decaying, little can be done to save the trees.

Clematis Stocks Dying after being Grafted: *H. C.* The stocks appear to have been pushed into top-growth before they have moved at the root, and had then been topped, and the grafts inserted; but no real union had taken place, and the stocks died in consequence from exhaustion. Perhaps they had got dried at the root before they reached you.

Correction.—In our report of the last show at the Drill Hall, the word Tanakea should be substituted for Janckea

Croquet: *Subscriber.* Obtain Capt. Crawley's *Lawn Tennis, Croquet, &c.* Price 1s. J. Byrne, Bookseller, 10, Warwick Court, Holborn, W.C.

Dwarfed Japanese Trees, Climbers, and Shrubs: *E. Perkins.* Let the plants be potted in turfy loam, to which an eighth part of leaf-mould has been added, potting firmly, and mingling the soil intimately with the roots from bottom to top, and putting it in by handfuls only, making it firm as the work proceeds. As your plants have made growth during the voyage, and are therefore somewhat susceptible to cold, let them stand in the greenhouse or a cold frame, the latter being preferable as it can be kept close, or nearly so, till growth at the root has begun. Beware of hurrying the growth of shoots before the roots become active. Subsequently stand the plants on a coal-ash bed, or plunge them wholly or in part in coal-ashes in a sunny spot, affording each plant plenty of room, so as to obtain robust foliage. The previous year's shoots, and those of the current year, must be severely pinched, and shoots calculated to take the lead unduly must be suppressed, unless required to add to the width or grotesqueness of the plant. In this case such shoots should be firmly fixed, point downwards, in the direction they are intended to take. In general the plants with persistent foliage, such as Conifers, Azaleas, &c., are capable of enduring the winter climate of this country in the open air if plunged; still it is prudent to place them under cover, and protect from severe frost, but not in any way to coddle them. Late spring frosts are injurious when the plants are not at rest, and should be guarded against. In regard to manures, these should be of a very mild nature, such as those made from soaking a bag of decayed tree-leaves in a tub of water, or fine bone-meal in powder, which may be afforded twice a month from March to June. The bone-meal should not exceed three teaspoonfuls at a time for a vase or pot of 1 foot diameter, and half a teaspoonful for one of 4 or 5 inches diameter. We do not recognise the plant of which you send a leaf. Your list contains the names of deciduous plants only. You should obtain a little book entitled *Les Arbres Naines Japonaises*, by M. Albert Maumené; Paris: Librarie Horticole, 84 bis, Rue de Grenelle; or of Messrs. Williams & Norgate, 14, Henrietta Street, Covent Garden, London, W.C.

Employment in a Paris Nursery: *L. S., Guernsey.* You might advertise in the *Gardeners' Chronicle*, or in some of the French horticultural journals. Nurseries abound in the Paris environs, and you would find no difficulty in obtaining employment.

Gloxinia: *Y. Z.* The plants are infested with mites. Dip them in weak tobacco-water, or vaporise them mildly.

Grafting Pelargoniums: *Daughter of Constant Reader.* Take a healthy plant, say with a single stem as thick as a Cedar-pencil, cut off the top square across, just above a leaf; split the stem to the depth of 1½ in., and having made a wedge-shaped graft of the same size as the stock, insert it; bind in firmly with fine bast or worsted thread, and apply on the outside, over the ligature only, a thin coating of grafting-wax. Preserve the leaf or leaves at the top of the stock till an union has taken place, then remove them. Stand the plant in a close intermediate-house for a fortnight. The chief leaves on the graft should be cut off, all but the leaf-stalks, and the undeveloped ones at the tip. In the same manner, variegated or green-leaved varieties may be grafted on the main shoots of large old plants.

Iris Fungus: *Geo. T.* Your Irises are attacked with Heterosporium gracile (see *Gardeners' Chronicle*, June 9, 1894, p. 718). Spray the plants with potassium sulphide, ½ oz. per gallon of water, or with an ammoniacal solution of copper carbonate, at the rate of 1 oz. of carbonate of copper and 5 oz. of carbonate of ammonia to 16 gallons of water. Mix the carbonates together, and dissolve them in a quart or so of hot water, then add the remainder, which may be cold.

Meconopsis integrifolia: *M. B.* The plant has not been described in the *Gard. Chron.*

Melon-Leaves Diseased: *W. Forbes, and G. Bond.* The Melon-leaf blotch fungus, often alluded to in the *Gardeners' Chronicle* of late.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—A. Cox.* Not a single specimen in flower; 1, perhaps Thalictrum majus; 2, perhaps Galega officinalis; 3, Aconitum Napellus; 4, perhaps Valeriana officinalis; 5, Sedum reflexum; 6, S. Telephium, perhaps.—*Leather.* 1, Mercurialis perennis; 2, Arum maculatum; 3, Lamium album.—*Land.* 1, Arabis thaliana; 2, Galium verum; 3, G. silvestre; 4, Nasturtium silvestre; 5, Eleocharis palustris; might we suggest that *Land* would find these in some common Flora; Coste's illustrated *Flore de France* would be helpful.—*S. T.* The Dendrobium nobile flowers are of a dark form of the variety often called giganteum. The lower parts of the petals are too white for D. nobile nobilius.—*Glasgow.* Trichomanes venosum.—*W. D., Sussex.* Ribes aureum.—*E. P., Windermere.* Nepeta Glechoma variegata (variegated Ground Ivy).—*R. T.* Odontoglossum luteo-purpureum.—*H. T.* Adiantum concinnum, Passiflora cœrulea var. Constance Elliott.—*G. B.* Norway Maple, Acer platanoides.—*C. E. B.* A species of Pulmonaria, perhaps P. officinalis.

Notice to Leave Employment: *H.* In the absence of an agreement, the notice required on either side is one month, but it can be altered by mutual agreement. If a gardener is obliged by his employer to leave his post at an earlier date, he can claim wages; and if he reside on the premises, value of perquisites, and amount of rent, for the unexpired term.

Pæony-stems Diseased: *E. A. D.* The plant is attacked by a fungus, a species of Botrytis. We apprehend you can do nothing to guard against attacks, except to remove the plant as far as possible from its present position, and remove and burn the diseased portions. See *Gard. Chron*, August 13, 1898, fig. 32, p. 124.

Plants whose Blossoms are Suitable for Cutting, which will Grow along with Dendrobiums: *K.* Gesneras, Æschynanthus Allamandas, Anthuriums, Aphelandras, flowering Begonias, Bilbergias, Bomareas, Clerodendron fallax, Thomsonæ var. Balfouriana, fragrans, &c.; Combretum purpureum, Crinums, Dipladenias, Eranthemums, Eucharis, Euphorbia jacquiniæflora, Francisceas, Gardenias, Gloxinias, Hibiscus Rosa sinensis, and others; Ixoras, Justicias, Lasiandras, Rondeletias, Stephanotis floribunda, Tabernæmontana, Thibaudias, and many more.

Peaches: *H. H.* The fruits are attacked by the Peach-mildew. Nothing may be done to save fruits in this condition, and they must be gathered and burnt. The trees should then be dressed with "mildew annihilator," or sulphide of potassium, at the rate of ½ oz. dissolved in a gallon of water.

Potatos: *C. E. G.* and *W. W.* We are unable to name varieties of Potatos.

Raspberry-buds Shrivelling: *Mrs. Ricardo.* The buds are infested with the Raspberry bud-grub. There is no known means of destroying the grub, or the minute fly which lays its eggs in the buds; the pest may, however, be lessened in numbers the next year by gathering the affected buds, easily recognised by their abnormal appearance in the spring, and burning them forthwith. When fully grown, the little caterpillars descend by a thread to the soil, and hybernate therein, coming out as perfect insects in the spring. As the winter-sleep as chrysalids takes place around the Raspberry-stools, sprinkling the soil with quicklime, and forking it up 4 inches deep would bring the lime into contact with them, besides exposing them to the attention of the birds. This might be done several times between the present date and autumn.

Richardia Leaves: *Sarah Thatcher.* A pretty specimen of variegation, and worthy of being perpetuated.

Tobacco Cultivation in this Country: *Hortus.* You are quite correct in your statement in regard to the trials made by Messrs. J. Carter & Co., on some land at Bromley in Kent, and also some in Ireland. As an experiment it was satisfactory, and that too in a season too wet for the curing of the "weed." The produce being of a nice brown tint, and of a mild flavour. We believe the fiscal authorities prevented the further cultivation of Tobacco here.

Tomato-plant sent for Examination: *M. G.* We are unable to discover if this package was received by us.

Turning a Variegated Pelargonium into a Green-leaved One: *Daughter of a Constant Reader.* Cannot be done with certainty.

Vines: *W. G. W., C. A. B., and others.* The Vine is attacked by a fungus known as "Browning," which was illustrated and described in the *Gardeners' Chronicle* for August 19, 1893, p. 217; and also in the issue for February 19, 1898.—*T. F.* The result of too much humidity, or in other words, deficiency of ventilation.

Vines Dying Off: *P. W.* We surmise the mischief lies below the surface, and would advise you to examine the border, the soil of which may have become injurious to plant life as old borders made of rich materials are apt to become. Perhaps the drainage is defective, or the outflow drain closed with the roots of neighbouring trees.

Vines Flagging: *G. P. L.* It is probably due to a very dry border. You should examine the border in places to a depth of 3 feet; or it may be over-saturated with moisture. In any case, an examination of the soil seems called for.

Communications Received.—J. B.—J. R., Menabilly—R. A. R.—H. Hagiwara, Tokyo—Prof. Henriques, Coimbra—Lord Redesdale—T. H. S.—W. E. G.—H. & Co.—J. H. V.—E. B.—G. S.—A. R. G.—E. B., Chiswick—F. R., Quedlinburg—Lord R.—A. R.—W. C.—John Booth, Berlin—A. C.—Y. J.—D. G., Yorks—F. D.—J. O'B.—C. E. H.—F. L.—Rus in Urbe—S. B.—T. D.—A. F. T.—D. G.—R. A. B.—G. H. M.—E. Benary, Erfurt—H. M.—Prof. Fisher—C. H. P. W. H. D.—J. M.—T. H. Cook—A. P.—H. B. W.—Peach—R. P. B.—S. A.—C. T.—G. C.—R. G.—W. Allsop—J. W. McH.—G. K—W. J. G.—F. P.—G. E. S.—M. S.—Old Reader, see under Vines F. B.—W. B.—T. A.—W. T. H., Alnwick—W. E.—K. Sprenger, Naples—J. T.—W. C.

(*For Markets and Weather, see p. x.*)

The GREAT INTERNATIONAL EXHIBITION at GHENT.

THE opening of the great Quinquennial Exhibition at Ghent on Friday last was signalised by a remarkable address from the President of the Society, Count Kerchove de Denterghem. In five years' time the Society will celebrate the Centenary of its exhibitions; the present, therefore, is the last of the present era, and advantage was taken of the circumstance to take a rapid survey of horticultural progress.

The President, with that happy eloquence of which he has the secret, alluded in the first instance to the description of "new" plants and their introduction to cultivation, matters in which the Belgians, such as the two Morrens, Louis Van Houtte, Jean Linden, the Van Geerts, the Verschaffelts, and so many more, took such a commanding share. He passed rapidly on to the question of nomenclature, and the efforts made by the botanists to simplify and regulate the denominations of plants.

Hybridisation was then alluded to, and a graceful compliment paid to M. Ed. André, the introducer of Anthurium Andreanum. Keen competition, with all its drawbacks, and its occasional injury to the individual, is nevertheless a most important factor in the progressive advance of horticulture. It was pointed out that progress is to be looked for in the co-operation of botanists and horticulturists, the present meeting being specially marked by the presence of official representatives of the International Association of Botanists, and by various scientific exhibits relating to parasitism, grafting, bacteria, &c.

At the commencement of the new epoch upon which horticulture now enters, the great Ghent Society, said its President, recognises that whatever the practical end sought for, the same necessity arises for unceasing labour and increased scientific method. To produce a plant in its best condition at the minimum of cost, to put it on the market at the time when it is demanded by the purchaser, such are the requirements of the beginning of the twentieth century. The time has passed when it was only necessary for a gardener to be an expert practitioner. The houses of the cultivators have become factories in which the resources of science are as important as the skill of the practitioner. The botanists have a higher mission than that of applying barbarous names to, and dissecting the plants that the gardeners cultivate with such assiduity. Five-and-thirty years ago, Schimper, then Professor at Strasburg, complained to Strassburger, that the younger generation of

Fig. 106.—Linospadix Leopoldi, Hort. Sander: new palm shown at Ghent.

*

botanists no longer cared for plants. STRASSBURGER repudiates that imputation, and says that if he has dissected plants it was not with a view of injuring them! The salvation of horticultural art and industry depend, says M. DE KERCHOVE, on the union of science with practice in our horticultural establishments. Scientific experiments, the discovery of the means of preventing or combating disease or insect injury, more rapid and less costly methods of production —there is the talisman which will lead on to botanist will find in the establishments of the horticulturists an inexhaustible mine of interesting observations. The cultivator in his turn will learn from the botanist to improve and extend his methods of work. That this is no mere dream was shown by the speaker in allusion to the work of the lamented HENRY DE VILMORIN, of DUCHARTRE, NAUDIN, CLOS, MASTERS, HUGO DE VRIES, and others. The speaker went on to speak of the experiments of LAURENT, of DANIEL on grafting, of NOEL BERNARD on the relation united in co-operation, may come to know the plant better, and be able to mould it in accordance with our desires and our necessities, so that to use the concluding words of the President, when the Society in five years' time celebrates its Centenary, may it also be able to celebrate the "symbiosis" of Botany and Horticulture!

This fifteenth International Exhibition of horticulture, organised by the "Société Royale d'Agriculture et de Botanique de Gand," will close to-day (Saturday).

FIG. 107.—RETINOSPORA SANDERI (HORT.), WITH SILVERY FOLIAGE: SHOWN AT GHENT.

fortune. In illustration of these points, the President alluded to the wonderful developement of the chemical industry in Germany. In that country every factory has its staff of trained chemists, devoting themselves not exclusively and directly to the particular industry in which they are engaged, but also to original research from which ultimately, if not always directly, such vast practical results, otherwise unobtainable, are arrived at. These laboratories have preserved chemical industry from a decadence which without them would have been irremediable. Horticulture is in like case. The horticulturist must call in the assistance of the scientific man. Th between the formation of tubers, and of a parasitic or symbiotic fungus; and on the researches which go to show that the germination of the seeds of Orchids is often only possible when the embryo is in contact with the mycelium of a fungus from which it derives some portion of its nourishment.

The great questions relating to variation are as much the property of the cultivator as of the botanist, and everyone will endorse the wish of M. DE KERCHOVE that the botanists may be able to give us precise information of the causes and of the limitations of these remarkable phenomena. May it be that the botanists and the cultivators, During the past week, this exhibition has attracted to Ghent many of the prominent horticulturists throughout Europe. The Quinquennials during their ninety-nine years' existence have acquired such an international reputation as no other exhibition in Europe possesses. We always look forward with pleasure to these events, for they not only furnish an excellent illustration of the advances that have been made during the previous five years in this or that plant, and of the greater or less popularity accorded to different classes of plants, but they afford a welcome opportunity of meeting fellow workers from almost every nation in Europe.

All this is distinctly favourable to the development of horticulture. The jury of about 230 horticulturists who were invited to adjudicate at this show, will carry away with them many a hint obtained during their visit, from the examination of the exhibits, and the conversation with their colleagues. They will also carry with them as heretofore, a vivid recollection of the exceeding courtesy, and bounding hospitality extended to them by the Society, and by Belgian horticulturists generally. From the indefatigable President, the Comte De Kerchove de Denterghem, whose energy and tact on behalf of the Society are among the chief reasons for its success, to the least prominent official, all have offered the heartiest welcome, and the most liberal hospitality.

The jury included thirty-two representatives from Britain, and our country was further honoured by the appointment of Lord Redesdale as President. His lordship fulfilled the duties of this office in such a manner that he quickly aroused the enthusiasm of his own countrymen, and the sympathy and respect of the rest of the jury.

The proceedings commenced at 10 o'clock on Friday morning, April 17, when the jury before commencing their duties assembled to hear an address by Comte De Kerchove, of which we give the substance beneath. The work occupied but little time, for the classes were arranged into sections, and the jurors into numerous groups. Each group elected a President and Secretary. A number of boys from an orphanage were employed as messengers, and conveyed the result of each class immediately to the Bureau. This arrangement enabled the Executive to get out a complete catalogue of exhibitors and prizes by noon on the following day. The publication contained 158 pages.

The jurors were entertained at luncheon at 2 o'clock on Friday, when Comte de Kerchove related the history of the Society; and Lord Redesdale announced that the deputation from the Royal Horticultural Society, consisting of his lordship, and Messrs. F. Lloyd, C. C. Hurst, James Hudson, and C. E. Pearson, were authorised to award three Medals to certain exhibits. The deputation had therefore awarded a Gold Medal to M. Peeters for his magnificent exhibit of Orchids; a Gold Medal to the Société Horticole Gantoise, for a collection of twenty-five magnificent Palms; and a Silver-gilt Medal to M. E Bedinghaus, for a collection of twenty-five distinct greenhouse plants. His lordship's reception by the Continental jurymen was most cordial. Lord Redesdale congratulated the Society upon the beautiful place they had for their exhibition, and described the efforts we are now making in this country to provide a more suitable place than the Drill Hall for the shows of the Royal Horticultural Society.

The Burgomaster of Ghent said that the commercial relations between the Flemish and

Fig. 108.—Romanovia nicolai, hort. sander: new palm shown at ghent. (see p. 244.)

English people were strong, and invited the jurors to a "Raoût," offered by the communal authorities at the Hôtel de Ville on Saturday evening.

On Saturday, at 2 P.M., the Exhibition was formally opened by his Majesty LEOPOLD II., who was accompanied by Princess CLEMENTINE, and others. The KING, accompanied by the President and by Lord REDESDALE, made a thorough inspection of the show, and as usual exhibited great interest by conversing with many of the jurors and exhibitors respecting the plants. During the whole of these proceedings, and the remainder of the afternoon, snow fell in great quantities.

On Sunday morning the jurors were invited to a reception by the Chambre Syndicale des Horticulteurs, and were welcomed by the President, M. O. BRUNEEL. At 5 o'clock in the afternoon the "Société Royale d'Agriculture et de Botanique de Gand" entertained the jurors at a magnificent and sumptuous banquet in the hall of the Grand Theatre, in the presence of the MINISTER OF AGRICULTURE, and other distinguished representatives. Lord REDESDALE and the English contingent was again received with the greatest enthusiasm, and the English National Anthem was played by the band twice during the proceedings. This event brought the public functions to a close, and the next two or three days were spent in visiting some of the more notable horticultural establishments in Belgium.

The exhibition was held in the Casino buildings, and in a large annexe or temporary building similar to that used five years ago. The Orchids were contained in an oblong building with square corners. The flat glass roof was screened with art muslin of shades of green and pink colours. The walls were of a neutral tint, being of a dull, bronzy-green colour, and six feet deep above the stages were wholly covered with mirrors, so that all the Orchids could be seen duplicated, and the effect was very noteworthy.

In such a show it is, perhaps, invidious to describe any particular collection of plants as superior to all others; but, by common consent, the collection of Orchids from M. PEETERS was magnificent. Next to these were the Palms from the Société Horticole Gantoise; and the splendid Hippeastrums from the enterprising firm of Messrs. R. P. KER & SONS, Aigburth Nurseries, Liverpool. The collections of Anthuriums, Oranges, Clianthus Dampieri, hardwood greenhouse-flowering plants, and various other species, also afforded striking instances of successful cultivation.

We were able to illustrate and describe several of the new plants in our last issue, and this week we publish photographic illustrations and notes upon some of the other species shown on this occasion.

It is noteworthy that the Ghent nurserymen, having been successful in winning first prizes for a succession of years for a group of Azaleas suitable for trade purposes, have been beaten on this occasion by Messrs. F. SANDER & SONS, of St. Albans and Bruges. This friendly rivalry adds much interest to the shows.

Englishmen generally commence by speaking of the weather, and finish by referring to the same subject. It is unfortunate that during the first days of the exhibition the weather was very unpleasant. Many of the English visitors will remember their experience in the Channel for some time to come.

FIG. 109.—DRACÆNA KEWENSIS, HORT. SANDER: SHOWN AT GHENT. (SEE P. 245.)

(For continuation of Report, see p. 266.)

Bradbury, Agnew & Co., Ld., Printers, London and Tonbridge.

THE
Gardeners' Chronicle

No. 854.—SATURDAY, MAY 9, 1903.

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BELGIAN HORTICULTURE.

THE great exhibition at Ghent afforded us an opportunity, despite the terrible weather, of renewing our acquaintance with several of the leading nursery establishments. Some notes concerning these may be of interest to our readers.

MOORTEBEEK.

It was with great satisfaction we found ourselves in Brussels on the 22nd ult. Several years had passed since we had the opportunity to visit the Orchid establishment of M. Lucien Linden et Cie., at Moortebeek, but we had still the liveliest recollection of the treat that visit afforded us, and were anxious that history should repeat itself.

At the time of the earlier visit, the nursery was but two years old, and in that short time the houses had been stocked with a collection of plants that exhibited such perfect cultivation as surprised all who saw them.

Several Orchid cultivators from Britain, including the present writer, were exercised at that time to find an explanation of M. Linden's success, and we remember well that he attached considerable importance to the following points: 1, suitability of site and atmosphere; 2, construction of the glasshouses; 3, skilful cultivation, or the ability to use a good atmosphere to the best advantage, to repot the plants in the best medium and at the best times, and to afford water when the plants require it, and then only. We may say candidly, that no collection of Orchids ever impressed us as cultivators more than that in the newly-established nursery five years ago.

Such were our thoughts, then, as we entered one of the excellent trams that run from the Bourse in Brussels right away into the country, passing in front of M. Linden's establishment, which is near to the Chaussée de Ninove, and nearly four miles to the west of the centre of the city. The nursery itself is on rising ground, a kind of plateau, and the atmosphere clear and buoyant. The ascending path from the roadway brings the visitor to a porch, that serves as an introduction to a glass building about 110 feet long and 22 feet wide, that runs at right angles from the public road. This house contains most of the Cattleyas and some Lælias, and they are arranged on a two-faced stage some 10 feet or more high, which is provided with a path along the top. An inspection of the plants soon satisfied us that their condition was exactly that which, owing to our previous visit, we had expected them to present. Not many were in bloom, but every plant bore the stamp of good health. The leaves were large, thick, of deep green colour, of perfect development, and uninjured by fungoid-spot or other blemish, whilst the young growths were progressing with the utmost freedom.

THE ODONTOGLOSSUM-HOUSES.

From the large house open out fourteen smaller span-roofed structures, about 90 feet long and 9 feet wide, seven of which may be entered from either side. The seven houses in each block are connected by the half-span system only, which means that the span or dip between each house does not reach the ground-level, but leaves a free circulation of air throughout all the houses to a height of 3 feet.

The visitor therefore by stooping a little may obtain a view of the plants in the entire block. What a magnificent sight it is! On one side the block is nearly filled with Odontoglossums in such perfect health, one wonders for the moment that the cultivation of Orchids should ever present any difficulty. There must have been something like 50,000 Odontoglossums in that view, from freshly imported plants to specimens in 6 and 7-inch pots. One cardinal feature in the cultivation practised at Moortebeek is that of keeping the plants in an atmosphere that is constantly moving, circulating around them, from beneath and from above. The stages are therefore not solid, as in most Orchid-houses, but are so arranged that the air, moisture, and heat, may pass through them, thus providing the plants with a condition as nearly as possible approximating to that of a plant cultivated in a basket or pan, and suspended in mid-air.

Of these fourteen houses, every alternate one contains a tank of rain-water which runs the entire length, and provides chilled water for affording to the plants. The water can be reached easily from every path, and the moisture arising from the tanks may, of course, circulate uninterruptedly throughout the range. None other than rain-water is ever afforded to the Orchids growing at Moortebeek, and we have heard M. Linden express the opinion that the water in that locality possesses a peculiar suitability for Orchids.

In addition to the moisture that enters the atmosphere from the tanks already mentioned, it must be understood that each plant stands over a little lake of its own. M. Linden uses an earthenware stand for every specimen, in the shape of a saucer, filled with water, with a collar in the centre for supporting the pot containing the plant, which therefore has an island home, and is perfectly secure from the attacks of slugs and wingless insects.

There were not a great many Odontoglossums in bloom at the moment, and their attractiveness was due to their condition. The pseudo-bulbs seemed twice as large, and plump, and good as one generally sees them; and the fully-developed leaves, many of which had developed a purplish tinge so common to healthy Odontoglossums, were large, leathery, and satisfactory from every point of view. The young growths, some of them about 2 inches or 3 inches long, were astounding. One looked a second time to be certain they were actually the growths of Odontoglossum. Many plants were developing their flower-spikes, but owing to adverse weather, were later than they are in most seasons. Amongst these was the valuable variety known as Boule de Neige, a pure white-flowered variety of O. crispum. Perhaps by this time its lovely flowers have unfolded. Several varieties of O. sceptrum were observed in bloom, one named eminens having bright yellow markings. But the gem amongst the Odontoglossums in bloom was a variety of O. crispum, named diatretum; the flowers were large in size, with wide imbricating petals and good labellum. Each sepal had one reddish spot on the white ground, the petals were free from spotting, but the labellum was also marked prettily with red. The flower-spike bore sixteen fully developed blooms, and the reader may imagine what a very fine spray it was.

WELL-GROWN CYPRIPEDIUMS.

Next to the Odontoglossums, perhaps the Cypripediums were the most noteworthy, and of these C. Lawrenceanum, just as on the former occasion, were magnificent, the plants filled about three-quarters the length of a stage in one of the houses. Any one of them would sell splendidly in Covent Garden market as a foliage plant, so fine were the leaves, and intense and distinct the markings. Many of them had flower-stems as much as 30 inches high, and the varieties in bloom were good ones, especially one, which had a very large boldly-lined sepal, and an inflated brown-coloured slipper.

Amongst Cypripeds in flower was one of the C. × Alexandræ, a good form of C. hirsutissimum, known as Moortebeekense, and a fine flower of C. × Sanderæ. Miltonia vexillaria, of which there was a very large batch of perfect plants at the time of the earlier visit, was not present in so large a quantity, but it is a plant that succeeds wonderfully well there. Cattleya Mendeli, and a few varieties of C. Trianæ were in flower, but not C. Warocqueana Lindeni, which is one of the best existing varieties of C. labiata.

As showing the success which follows the cultivation of the Cattleyas and Lælias,

it was only necessary to turn to a batch of the rather difficult Lælia superbiens, with strong pseudo-bulbs nearly a foot long. This species will not succeed if it be frequently disturbed at the roots, so M. Linden puts his imported pieces into receptacles that will be sufficient for them for a considerable time.

There was a good batch of Phalænopsis, and these, like the other species and genera, bore evidence to the efforts that are made to obtain valuable hybrids. Some of the plants were bearing seed-pods 6 or 7 inches long, the result of cross-fertilisation, and containing the embryos of varieties of mediocrity or excellence, as time will show.

The Oncidiums, Dendrobiums, and other genera we must mention most briefly; but of the varieties of Dendrobium nobile in bloom, a variety named "Cattleya" had flowers from 3 to 4 inches across, and of excellent colour also; its name arose, probably, from the appropriate exclamation, "As big as a Cattleya!"

Leaf-mould Tried and Condemned.

Amongst M. Linden's articles of belief, several are noteworthy. He refuses to believe in the degeneration of Orchids in Europe, except as a preventible evil; in such cases he says that the plants have been badly established. The two first years after importation, in M. Linden's view, decide the future of the plants; if by that time they are perfectly established and healthy, they are likely to remain so under suitable conditions. *Per contra*, if they are ill-conditioned then, their future life will be but an existence.

Leaf-mould as a rooting medium he has tried, and now condemns. A few years ago we visited the "L'Horticulture Internationale" at Brussels, and there we were shown Orchids growing in leaf-mould, as an experiment, under the directions of M. Linden. The result up to that time was published in the *Gardeners' Chronicle*. The plants were rooting abundantly, the growths seemed to be satisfactory, but the flower-spikes appeared to be weaker than they should have been. Further experience has convinced M. Linden that such a medium is injurious. Last year he said "We (M. Linden and his skilful grower M. Van Cauwenberghe) do not believe that the material, the sustenance for the plant, is of primary importance in Orchid culture. Whether the plants are cultivated on blocks (Cattleyas), in pots, in green moss, live sphagnum, leaf-mould, or in the roots of Polypodium, is a very secondary matter. Orchids need no manure, and we never give them any. Aëration, the amount of moisture given at different stages of growth, the resting period, and a proper temperature, constitute the chief factors of success." M. Linden then says that if an Orchid is in bad condition, it is in green sphagnum that it will most easily regain vigour. He had bought right and left batches of Orchids growing in leaf-mould. None was in a satisfactory condition, the roots in the mould being in most cases rotten.

Referring again to the use of leaf-mould, M. Linden said in March this year: "I have still had further occasion to notice how prejudicial the material is for those plants, which at the first seem improved, but afterwards are killed by it."

NEW OR NOTEWORTHY PLANTS.

REHMANNIA ANGULATA.*

[See Supplementary Illustration.]

This is the plant exhibited by Messrs. Jas. Veitch & Sons at a recent meeting of the Royal Horticultural Society. It is a Scrophulariaceous plant, allied to the common Foxglove, and is a native of Ichang, Hupeh, where it was detected by Dr. Henry, and again by Mr. E. H. Wilson, to whom we are indebted for its introduction to cultivation.

It is a perennial, growing to a height of 1 to 3 feet, covered with glandular hairs; the leaves are pinnately lobed, with deltoid-toothed lobes, the lower leaves on long stalks; the flowers are in racemes, with deeply five-cleft calyxes, and corollas 1¾ to 2¼ inches long, with a dilated funnel-shaped tube, and a five-lobed, reflexed, five-parted limb, the rounded lobes of which are shorter than the tube.

The plant was originally referred to R. glutinosa, but Hance was disposed to consider it a distinct species, in which opinion he has been followed by Hemsley.

SOUTH AFRICA.

(*Continued from p.* 210.)

Colesberg.—I then passed on to Colesberg, and finding at the back of the Masonic Hotel, amongst the rocks, Stapelias in quantity, I collected portions from the various clumps, and sent a boxful to Mr. Chalwin, of the Cape Town Botanic Garden. Here, again, I found also a few of the same bulbous plants I saw near Talana Hill, and here it appears to end. As I have collected seeds of it at one place and another, and sent home a good lot, I invite all lovers of half-hardy bulbs to apply to my sons, who will gladly present them with a packet of this seed. I am advising them to this effect, so no one need hesitate to write for seed; and it will be a great pleasure to me to find on my return home that my offer has been generally accepted, and I can but add I hope the plant will be worthy of a place amongst early-flowering bulbs. The name or names of the places where the seeds were collected will be put on the packets by my sons. I hope the information may be useful to future explorers after flowers in South Africa.

From Colesberg I went to Hanover, and rested a fortnight with my friend Mr. Dowsett, in charge of the Cape Government plantation. A farmer some 18 miles distant invited us to spend Christmas Eve and the following days on his farm at Klip Kop. We missed the road, and wandered many hours on the veldt before we could strike the right path. At last we reached our friend's boundary fence, and by keeping alongside of it reached the house, where dancing and singing was going on merrily; and a hearty welcome we got after being some seven or eight hours in a South African storm of rain, thunder, and lightning. What with the cover of the Cape cart, waterproofs, and rugs, we were all dry except Mr. Dowsett. As the mules gave out, and their temper was up, it had become a question of whether the mules or the driver would have the mastery. All's well that ends well, but I confess to having felt tired of the jolting on the rough veldt. We spent some delightful days with our host and hostess, the family, and the many visitors doing all they could to make the time pass pleasantly. Mr. Mentzies (whose name is no doubt a corruption of Menzies), I claimed as a countryman, to which he was in no wise averse. He is a progressive farmer, with some 18,000 acres of veldt land. During the war, he suffered, like most border men, but being loyal and useful to the military, he says he is well satisfied with the compensation he has received, and the prices he was paid for his supplies. Fortunately he had a good supply of Lucerne, all of which the military took and paid for. Now he is dealing in sheep, which the Boers are buying, and paying for cash down. The farms are being rapidly re-stocked, the Boers having plenty of money, and laying it out as opportunity offers. Cape Colony is making a good thing out of the misfortunes of the Boers of the two late Republics. Mr. Mentzies expressing his desire to improve his property by planting trees, Mr. Dowsett and I looked into the matter. He showed us the land, where he can command water, some 5 acres round his house. We proposed 1 acre of orchard, running a broad belt of hard-wooded Gum-trees all round it; next his house, a belt of as ornamental trees as could be got together, mixed with the purple-leaved Japanese Plum, &c., and inside the two belts all kinds of timber-trees the Government plantation can supply. In the centre a broad walk with every now and then arches for climbers, and underneath each a fountain. On the veldt, I suggested he should plant groups of trees as shelter for his sheep, planting as many species as he could get, and fencing the same for the present, and when he finds which sorts succeed best, to extend until he has small woods of profitable timber on many parts of his farm. It would be an object-lesson to his neighbours and the Karoo at large. The Southern Karoo is sand, the middle and Northern Karoo a good yellow loam. All that is needed for the Karoo to turn it into a land of plenty, is water; now it is mostly a grazing ground for sheep, goats, and ostriches.

Kimberley.

From Hanover I proceeded to the City of Diamonds (Kimberley), and visited one of De Beers' mines, and also Kenilworth, the village for the De Beers' workmen. Here there are some fine avenues of trees, one especially of the Beef-wood tree; one long vinery, and one or two smaller ones. But I hope to give an article specially on Kenilworth, if I can get some figures from Mr. Fenner, the manager.

While at Kimberley I visited Magersfontein. On top of the highest kopje is the Scottish monument, with the following inscription—

"Erected by the Scots the world over, in memory of the officers and men of the Highland Regiment who fell at Magersfontein, December 11, 1899."

"Scotland is poorer in men, but richer in heroes."

Mr. Bisset, an old Scotchman, on whose farm the battle was fought, and who visited the scene the following morning, questions the correctness of Mr. Conan Doyle's description.

From Kimberley I made my way to Vryburg, a small town in the war-storm centre. Here I had a talk with the Mayor about growing firewood instead of using sheeps'-dung from the kraals for cooking. It is a common practice to kraal the sheep, and when there is a sufficient thickness of dung, to cut it in blocks, dry it, and use for fuel; the Boers use it also for flooring their houses, and thus the ground is robbed of its due. I have been told that the Karoo is getting poorer in vegetation, and no wonder, as it is constantly fed off, and no return is made so as to save the country. I tell them they must grow their firewood and return to the soil its due. *Peter Barr, V.M.H., Cape Colony.*

(*To be continued.*)

* *Rehmannia angulata*, Hemsley, *Journ. Linn. Soc.*, xxvi., 193.

Rehmannia glutinosa, Hance, in *Journal of Botany* (1880), p. 300.

R. glutinosa, Libosch; *var. angulata*, Oliver, in *Hoo. Icon. Plant.*, t. 1589.

CLERODENDRON MYRMECOPHILUM.*

In fig. 118 we reproduce a sketch by Miss Smith of the new Clerodendron from Singapore, which has recently bloomed in the stove-house in the Royal Gardens, Kew. A description of the plants at Kew was published in these pages on March 28 last, p. 196. The illustration will show what an excellent garden-plant this new species is. The colour of the flowers is bright orange.

* *C. myrmecophilum* —H. N. Ridley, in *Journal of Botany*, 1895, p. 42.

HIPPEASTRUMS FROM SEED.

The varieties of Hippeastrum, formerly called Amaryllis, have been grown on a limited scale in every well appointed garden as long as I can remember, but somehow the plants have not found their way into general cultivation to such an extent as their merits entitle them to do. The high decorative value of this flower has been well demonstrated by many specialists, notably so by Messrs. Ker of Liverpool, and by Messrs. Veitch & Sons of Chelsea, to whose firm is due the credit of not only raising and introducing some of the most magnificent varieties we possess, but also for showing us what perfection of quality and size of flower it is possible to attain by intelligent cultivation.

Amongst amateurs, horticulture is under an obligation to Captain Holford, Westonbirt, for the magnificent exhibition of these plants in bloom he has occasionally permitted his gardener, Mr. Chapman, to bring to the Drill Hall meetings of the Royal Horticultural Society. Those who had the privilege of observing the last collection shown will not easily forget the brilliant display of the most choice varieties, all superbly grown, filling one whole side of the Drill Hall stage with a bank of bold, stately blooms, that scarcely any other flower could rival in brilliancy and

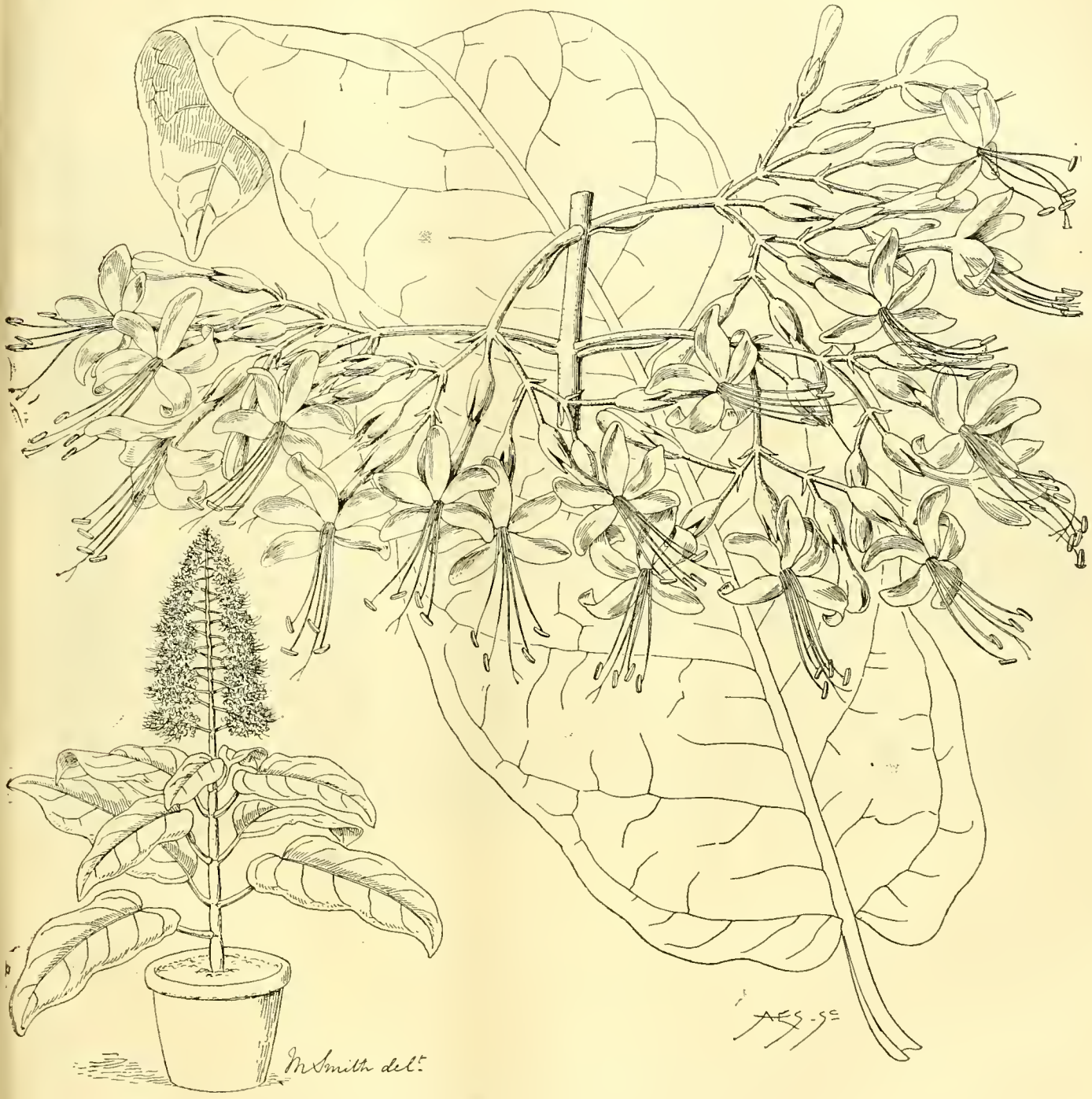

Fig. 118.—Clerodendron myrmecophilum: flowers, orange.

effectiveness. I do not for a moment suggest that a general emulation of these renowned growers as regards number of plants is possible, or as regards the rarity of the varieties grown. This would mean a considerable outlay in money, and the provision of some extra glasshouses. But it is within the reach of all lovers of this flower who may possess a moderate amount of glasshouse accommodation to possess themselves of a collection at small cost by growing the plant from seed. I am led to make these remarks from my experience of the great value of the Amaryllis as a decorative plant for the conservatory when in bloom, but especially for its value when cut for indoor decoration. They may be had in many shades of colour, from white and flesh to pink, from cerise to dark rose, and in all hues from scarlet to crimson, as well as in many multi-coloured flowers besides. By growing and watering at different times of the year, a succession of blooms may be had from February to the end of April; and by growing the "Aulica" section, which blooms in autumn and winter, the plant may be had in bloom for many months of the year. I can remember the time when cultivation of the bulbs from seed would have been counted as a waste of time and money, and the resulting progeny of such poor quality and colour as to make the effort not worth attempting. The case is different now, in consequence of the greater care and skill in fertilisation, and in saving the seed only from the best varieties; so that he who invests in a half-crown packet of seeds in these days may feel confident of ensuring a large percentage of flowers, equal in many respects for decorative purposes to many of the best named varieties, and by rigid attention to selection for a few years, ultimately become possessed of a collection of superb varieties from seed.

Cultivation. — The seed may be sown immediately it is ripe, but perhaps the best time is the first or second week in February. Place the seeds a quarter of an inch apart in a 5-inch pot half-filled with crocks for efficient drainage, and previously filled to within half an inch of the rim with a compost consisting of half silver-sand and half light loam, covering the seed lightly with this material. Plunge the pots in a bottom-heat of 65°, placing a square of glass over each, after a good watering from a fine rose, until the seedlings appear above-ground, when they should be removed to a lighter position near the glass, but still given a temperature of from 60° to 65°. As soon as the seedlings are large enough to handle they should be potted singly into 3-inch pots, and grown-on in a similar position as to heat and moisture as when in the seed-pans. Towards the end of April, the strongest may receive a shift into a 5-inch pot, and grown freely on until the middle or end of August; by this time they will have formed nice little bulbs. After this, inducement to further growth must be partly arrested by placing the plants in cold houses or pits, gradually reducing the application of water preparatory to a period of rest during the autumn and winter.

In the case of old bulbs during the time of rest, say, from November to the end of January, little or scarcely any water should be applied; but young seedlings must not be completely dried off in order to preserve the bulb moist and the foliage green. One great advantage the Amaryllis possesses over many other plants of less value, is the economical method in which the bulbs may be stored during the winter in odd corners, under stages, &c., so long as they are exposed to a fair amount of light, and the temperature be kept between 45° and 55°. Early in February the following year the young plants should be started into growth, having been previously seen to as regards potting, and shifting into larger pots if necessary. It is better at this stage to reduce the ball of earth a little, and to replace the bulbs in the same size pots. This must depend on the size of the bulb, for if of large size the bulb must be afforded a larger pot, and shifted into larger pots towards the end of April. In early spring, when starting the plants into growth, it is an advantage to be able to plunge the pots in a bottom-heat of 65°; but the temperature of the air at this time should not exceed 55° until growth is well on the move, when it can be raised a few degrees, and more moisture in the air afforded. If a house can be devoted to the plants during the growing and flowering season, they had better remain plunged in this material, and a moist-growing atmosphere maintained, but excess of heat must always be avoided. Once the pots are filled with roots, and growing freely, say through May and June, occasional applications of weak manure-water will prove beneficial in helping to swell the bulbs; slight shade in the middle of the day for an hour or two is beneficial, for although the plant loves the light, it does not bear well the direct rays of the sun at midsummer. The strongest bulbs will benefit by being repotted into pots a size larger towards the end of April. After this potting, shading must be applied for about ten days, until the roots have recovered from their disturbance, and a moist and fairly warm atmosphere is recommended for their growth the first part of this season. Manure-water in a weak solution may be given two or three times a week, as soon as the newly-potted plants have again filled their pots with roots. Towards the end of August growth will have pretty nearly ceased, and the plants should be removed to cooler houses or pits; or the permanent house they may be grown in may have the temperature reduced, and more air may be admitted. This preparation of the plants for their season of rest, is recommended for the first year. When February comes round again, the same process will have to be gone through of overhauling the plants as regards potting, starting into growth, &c. The strongest bulbs should be repotted into larger pots, and those not so strong, top-dressed only. If success has attended the growth of the bulbs during the two years we have had them in hand, a few will throw up flower-spikes, and gladden the heart of the grower with a welcome return of bloom during the month of April following. Those which have failed to do so must be grown on as before, when they should not fail to bloom the following spring. Whilst the plants are in bloom, they should be removed to a well-ventilated house, having an intermediate temperature; and they must be carefully afforded water, always avoiding a too wet condition of the soil, so as to keep it rather on the dry side than the wet, and carefully shading the bloom from bright sunshine. Treated in this way, they will last a long time in perfection of flower.

Properly treated, the Hippeastrums will go on increasing in size of bulb and strength of flower for many years, each bulb giving off one or more offsets every year, which, when large enough, may be detached and grown on singly as advised for the seedlings; or they may be allowed to grow on with the parent bulb, until there may be half a dozen or more bulbs in a pot. Grown in this way into specimens, they form magnificent objects when in bloom with sometimes two and three spikes to a bulb, and four or five flowers to a spike. Once having reached the specimen stage in large-pots, they will not require repotting so frequently; top-dressing in February with the same material as they are potted in, and feeding with manure-water during the growing season, answering all purposes. As soon as the flowering time is over, the plants should be reintroduced to the growing house, and encouraged to make a free and strong growth until the resting season again comes round.

Soil.—The compost that best suits the Amaryllis is a friable, fibrous loam of a medium texture, neither too light nor too heavy. To the loam should be added a liberal admixture of silver-sand, a gallon to a bushel of soil, and the same of charcoal broken into bits half an inch in size. In potting, the soil should be made firm with the potting-stick, and the bulb should not be buried too deeply under the soil. Efficient and ample drainage must always be provided. The two most important points to be observed in the cultivation of this plant in order to secure success, is to obtain free, vigorous growth during spring and summer, in a position where ample light is at command, without too much heat, and to afford a congenial position as regards light and temperature for resting in winter. Red-spider is their most dreaded enemy; sponging the leaves with soft-soap and warm water is the best remedy, or fumigating with XL-All. *Owen Thomas.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM ATRO-VIOLACEUM.

The beauties of this fine warm-house species are well set forth in a photograph kindly sent by Mr. J. T. Reynolds, Valebridge, Hayward's Heath, and which was selected by him from a batch of that species. The largest plant has thirty-five fine cream-coloured flowers marked with purple, and the flowers are said to be now as good as when they first expanded two months ago.

A photograph of a fine specimen of Cattleya intermedia amethystina, with forty flowers, is also sent, both subjects being taken by Mr. Reynolds' son. Grown and flowered as are these plants, it is not surprising that Orchids are such favourites.

Odontoglossum × Andersonianum vars.

It is interesting to note in these natural hybrids the development in the direction of Odontoglossum crispum which high cultivation produces. Frequently we have flowers sent as "spotted O. crispum," which are undoubtedly well-cultivated O. × Andersonianum. A very noteworthy example is a set of flowers sent by Fred. Hardy, Esq., Tyntesfield, Ashton-on-Mersey (gr., Mr. Stafford), and which are as large as those of O. crispum, two of them having also broad segments, as in that species; all, however, have the Hawthorn scent peculiar to O. Andersonianum, and derived from O. gloriosum. The largest flower is 4½ inches across, primrose-yellow, tinted with purple at the back, and finely marked with red-brown. Another, slightly smaller, has broader segments; it also is tinted with purple, and like the first-named, is of O. × Ruckerianum section. The broadest and finest is cream-white, spotted as in the variety known as O. × hebraicum.

ALPINE GARDEN.

NOTES ON SOME AUBRIETIAS.

Bridesmaid.—In a recent issue of the *Gard. Chron.*, I spoke in praise of Arabis aubrietioides; shortly, however, after writing the note, I had the pleasure of becoming the possessor by purchase of the new Aubrietia "Bridesmaid," which has pleased me more than any new Aubrietia I have ever met with, and whose advent may have the effect of casting into the shade the pretty and desirable Arabis. The Aubrietia is quite a new shade in these flowers, so justly favourites in the rock garden and flower border, and it is a flower which should be secured by those who wish to be possessed of the best of the Rock Cresses. The flowers are of a good size, though there are larger-sized blooms in some of the other varieties, and they are of the most delicately blush tints

imaginable. It is quite a gem among the Aubrietias.

A. Moerheimi.—This Aubrietia, which emanated from a good source on the Continent, is not so fine as I had expected. The colour is a good rose, but not superior to one sent out by Herr Leichtlin a little before, and which I grow as "Leichtlin's rose;" the habit seems a little more compact, however, but the variety, upon the whole, is not superior to other Aubrietias of somewhat similar shade.

Leichtlin's Lavender.—Here we have a fine variety, with large and good-coloured blossoms of a lavender-blue. The flowers are really the largest of any of the Aubrietias I have yet grown, though they are not semi-double, like those of Beauty of Baden-Baden. Its habit is rather loose for my taste, but this can be improved by annual cutting back after flowering.

Dr. Mules.—In Aubrietia "Dr. Mules" we have the deepest-coloured of all the varieties at present in commerce. It is a very deep purple, yet almost startlingly bright and effective. With me it has a tendeney to grow "lanky," but here again to remedy this the shears have to be at work after flowering is over. I do not know whether it was Dr. Mules who raised this variety, but, at all events, that renowned grower of hardy flowers need not be ashamed of the Aubrietia which bears his name.

Fire King.—Among the red and almost crimson hued Aubrietias this one is surely *facile princeps.* There are some with a better habit, for it is somewhat loose and free in its growth; there are some with larger flowers, but there is none with the intensity of colour, which was deemed to be described by the name of Fire King. There is no colour among the Aubrietias which can be described properly as fiery, but of them all none comes nearer to that than this variety, which, unlike some flowers, improves upon acquaintance, and grows more attractive as the plant increases in size.

Lilac Queen.—Like Fire King, this is one of Messrs. Barr's raising, and quite worthy the name it bears, and the firm sending it out. It is one of the best and prettiest of the Lilac Aubrietias, and forms a good companion to the best of the favourite varieties of other colours. I have some others, such as Souvenir de Wm. Ingram, Wallacei grandiflora, rosea, Leichtlini, and a number more, named and unnamed, but those already mentioned are among the best I have cultivated here. *S. Arnott, Carsethorn by Dumfries, N.B.*

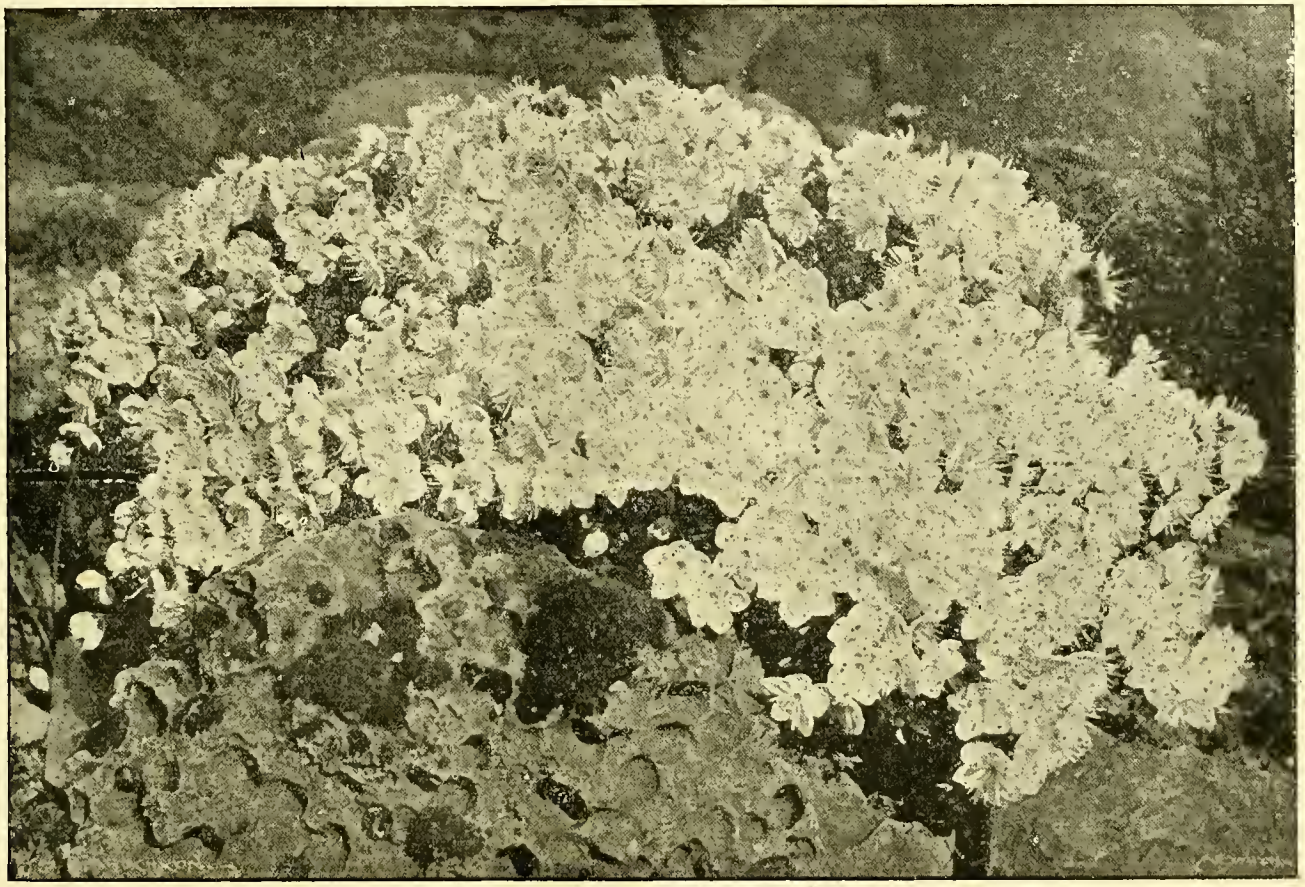

Fig. 119.—Rhodothamnus chamæcistus, from the garden of Mr. W. T. Hindmarsh.

RHODOTHAMNUS CHAMÆCISTUS.

This species, known also as Rhododendron Chamæcistus, is a native of the Tyrol and the mountains of Carniola, in Austria. It is seldom met with in our gardens, and owing to want of success in growing and establishing it, it is only met with in an unsatisfactory condition. The plant represented in the illustration (fig. 119) may fairly claim to be a very fine example. The photograph from which the figure was prepared was taken on April 7 last, when the lovely rose-coloured blooms, numbering over 1000, closely packed in a surface of some 22 inches by 12 inches, formed a beautiful object for several days.

The plant has occupied the same position growing in pure peat, half-way up the southern slope of my rockery, for many years—I think twelve at the least; and for long it made little progress, but recently it has rapidly increased in size. I often prefer to use peat alone instead of the much recommended compound with loam, and in this instance I have been careful to renew and add to it frequently. I need hardly say that being perfectly hardy, no protection is requisite, and not any has been afforded. *W. T. Hindmarsh, Alnbank, Alnwick.* [The flowers are of a pink colour, solitary at the tips of the branches, on long, slender peduncles; corolla rotate, about 1 inch in diameter. The leaves are entire, hairy, evergreen, and shiny. A figure is given in the *Bot. Mag.* (488). Ed.]

CULTURAL MEMORANDA.

NEWLY-PLANTED TREES.

If these are of large size, the soil about the roots should be examined, and if found to be dry, water should be applied copiously at intervals of a day or two till it is well moistened. This is a matter of importance at this season, and should never be omitted; for, although the surface-soil may be moist enough, it is the ball and the mass of roots which should claim the chief attention. Large bushes, such as Yews, Hollies, Laurels, Aucubas, and Conifers, removed with compact balls, are very apt to suffer from lack of moisture at this season, and if not thoroughly wetted throughout, die, or make scarcely any growth. Before affording water to such plants, it is advisable to make a basin round the plant by drawing the soil from

around the stem for the space of a yard or two, and forming a wall to retain the water, or to prick up the surface-soil so as to admit the water. After the first application of water, afford a mulch of manure, short litter of bracken, or, if no mulch may be used, keep the surface loose and friable with the hoe. In dry, sunny weather, a good syringing over head twice or thrice daily is useful in keeping large ornamental trees in a growing state, and a slight shade afforded on the sunny side is of great usefulness, more especially in hot, gravelly soils. *H. Markham, gr., Wrotham Park.*

Anthericum (St. Bruno's Lily).

There are several varieties of this hardy herbaceous perennial plant in cultivation, all of which bloom freely from the month of May to July. The plants serve for the embellishment of the greenhouse, conservatory, and dwelling; and although Anthericums succeed in common garden soil, a potting-mixture of light loam three-quarters, and of peat and sand one-quarter, should be afforded. A. Liliastrum is one of the best for this purpose, the flower-spikes being 2½ feet high, flowers white, and sweet-scented. *H. W. W.*

ITALY.

LA MORTOLA.

We had an exceptionally dry winter and spring this year. The rainfall from January up to now only amounts to 117·60 mm., whilst last year the same period had 386·30 mm., which makes a difference of 286·70 mm. The effect of this drought is evident throughout the country, and our garden suffers under it severely. Some parts of it almost looks as in the month of June in other years, when flowers and herbs hang their heads and wither away.

Nevertheless, Banksian Roses flower in abundance, and are now at their best. They climb to the tops of the Olive-trees and cover the roofs of cottages, turning them into a mass of bright yellow.

Aloes have been beautifully in flower. The rare Aloe Schweinfurthi (*Bot. Mag.*, 7667) from Niam-Niam Land, flowered from Christmas to this month. Last week Aloe hereroënsis, of Engler, began to flower. Of this species only three living plants were sent to this garden two years ago by Mr. Dinter from Windhoek in German S.W. Africa. Of these, one has flowered, I think, for the first time in Europe. This species belongs to the group of Saponaria, but the flowers are disposed in elongated racemes, and are much constricted above the ovary.

Many Agaves are going to flower this year, amongst them Agave Ellemeetiana and A. Salmiana var. mitriformis. *A. B.*

"The Garden Gazette," is a newly-established Journal, published in Melbourne, and so well started that it bids fair to achieve success, as it certainly deserves to do. In a recent number, Mr. Pockett gives his impressions of English gardens, pointing out that the number of persons in the old country interested in horticulture far exceeds the entire population of Melbourne and its suburbs. He visited Gatton Park, Greenlands, Friar Park, Frogmore, Reigate, Gunnersbury, Roehampton, Woodhatch, Burford Lodge, and other places. We suppose our Australian colleagues know their own business, but to outsiders it would seem that the practice of giving details of the preference shown by Lord this, or Lady that for particular flowers, is of no moment whatever to the general public. The description of the Melbourne Botanic Gardens is very interesting, and appeals to the whole gardening commun Australian or otherwise.

The Week's Work.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Show Pelargoniums, &c.—The shoots will need to be tied-in once again. Lightly fumigate the plants twice before the flowers are much expanded. Shade them as little as possible until the flowers have opened, when the atmosphere will need to be kept somewhat drier or the petals will decay. The zonal varieties for flowering in autumn and winter should be shifted into larger pots as this becomes necessary, using a compost of loam and a little bone-meal and sand. Pot firmly and place the plants on a shelf in a cool house, or on an ash bottom in cold frames in full sunshine. Pinch the points from the leading growths, and remove all flower-spikes as they appear.

Begonias.—Repot the earliest batch of tuberous rooting varieties, using equal parts loam and half decayed leaf-soil with a little well rotted manure put through a ¼-inch sieve, and river sand. Good specimens may be grown in 7 inch and 8-inch pots. A cold frame or pit having a southern aspect will suit the plants after this date. Here the plants may be dewed overhead with the syringe. Spray the plants overhead each morning and again at 4 P.M., closing the frame at the same time. During bright days a thin shading may be afforded them. Pot up succession plants directly this is necessary, and seedlings before they become crowded, keeping all of the plants within 1 foot of the glass. The Rex varieties of the fibrous-rooted section require abundant moisture and a fair amount of shade. They may be easily increased by severing the old leaves and laying them flat on the mid-rib in pans containing leaf-soil and sand or cocoanut-fibre, first making slight incisions with the knife on the underside of the leaf. Keep the leaves in position by means of small stones or crocks, and shade from the sun, but do not keep them too moist.

Fuchsias.—If large specimens are required, repot the plants before the roots get matted together. Those rooted in early autumn may be placed into 8 or 9-inch pots, using a soil consisting of well rotted manure one part, and loam two parts, with a little flaky leaf-soil and clean river-sand. The plants will acquire a pyramidal shape if trained upright to a stake and the side shoots are kept pinched, but it may be necessary to stop the leading shoot of some varieties to induce them to break at the base, when a new leader must be taken up, and all flowers removed that show during the month following. Stop the strongest shoots on old plants, and do not allow them to flower until six or eight weeks, giving plenty of light. They require a light position, overhead moisture, a thin shade during bright days, and a night temperature of 50° to 55°.

Cannas.—Shift strong-growing varieties into 7 or 8-inch pots, using a rich soil, and potting not too firmly. Place the plants in a cool greenhouse.

Calceolarias.—The tops of the Bamboo Arundinaria japonica (Metake) make excellent stakes on account of their colour being similar to that of the foliage of Calceolarias. Cultivate the plants in a north pit until the flowers are advanced sufficiently for removal to the conservatory. Fumigate them before the flowers open; a thin shade will be necessary during bright sunshine.

THE KITCHEN GARDEN.

By John Fleming, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Parsley.— Plants raised under glass and hardened off should be planted in lines at 1 foot apart, and in the absence of sufficient rain afforded water till established. The plants should be dressed lightly with soot for a fortnight. Seed may be sown in drills ½-inch deep, drawn at 1 foot apart, and when the plants are 2 inches high, thin them to 9 inches apart.

Beetroot.—The land selected for this important crop should be dressed heavily with sifted wood-ashes and soot, and pricked over with a digging-fork, so as to incorporate the dressing with the staple, and then be raked to a fine tilth with a wooden rake. The drills may be drawn at 15 or 18 inches apart, and to a depth of 1½ or 2 in. In order to obtain large, handsome roots, the dibber should be used in the manner recommended for Carrots in a previous Calendar.

Turnips.—The plants of the earliest sowings out-of-doors should be thinned to 4 inches apart, and the ground afforded a top-dressing of soot and wood-ashes, as a stimulant to growth, and as a deterrent to the Turnip-flea. Let it be applied in the morning, when the leaves are wet with dew, or after rain. Continue to make frequent sowings on rich land, partially shaded from the midday sun. If the land be of a close, heavy nature, do not trample it overmuch, or make the surface very smooth, but dust the drills with soot and wood-ashes, and pass a light wooden roller over the bed. Afford water copiously to Turnips growing in frames, besides ventilating freely.

Parsnips.—The plants should be thinned when in the first rough leaf, leaving them at 6 inches apart, and finally thinning to 12 inches, plying the hoe to keep down weeds and encourage growth.

The Thinning of Crops.—This is an important operation which must be carried out before the various kinds of plants are spoilt by being crowded in the lines or seed-beds. Failure to do this lessens the yield, spoils the quality, and shortens the period of supply. Peas and Beans suffer greatly from lack of timely thinning, which should be performed as soon as the seedlings can be readily handled. After thinning a crop, stir the ground with a Dutch-hoe.

Asparagus.—Cut all the strongest heads, that is those from 4 to 6 inches in height, every morning. Those not required for immediate consumption should be tied in bundles and stood in sancers holding an inch of water. Asparagus is the better for being cooked the same day that it is cut. Remove stray seedlings, and apply a light dressing of agricultural salt, 2 to 3 oz. per square yard; on retentive soils, guano or some decayed finely-sifted pigeons' dung form a better sort of top dressing.

FRUITS UNDER GLASS.

By T. H. C.

Cucumbers. — Plants in full bearing require copious supplies of manure-water, and frequent rich top dressings. Thin out the young fruit to one or two to a joint if it be desired to fruit the plants over a long period of time. Heavy crops on young plants quickly exhaust them. Cut out the old bine so as to afford more space for young shoots, stopping them at a joint beyond a fruit. Pinch the points out of younger plants when they have grown half way up the trellis. Stop the laterals, and remove tendrils and male flowers. A suitable night temperature is 70°, and by day one of 80° to 85°. Put out in a rich loamy soil succession plants, and sow seed.

Vines in Pots.—If started in November, these Vines will have produced a crop of fruit, and may be cleared out of the vinery, and the latter thoroughly cleansed, and filled with some other kinds of fruit-trees, or with Vines for fruiting next year. The pot Vines that were started at a later date, and are now carrying ripe fruit, should be afforded air constantly, also a much dryer air in the vinery than hitherto, and as much clear water at the roots as will keep the foliage healthy.

The Early Vinery.—If the Vines in this house that were started in December have made good progress, the gardener may expect to have the fruit ripe about the middle of the present month; but their flavour and sweetness will, if allowed to hang a little longer, become more fully pronounced. Let atmospheric moisture be reduced by degrees, and for the present continue to damp down the paths, &c., in sunny weather, affording air more or less freely in accordance with the state of the weather, and leaving the ventilators open a small space during the night. Provided water was copiously applied, and the border mulched when the berries began to colour, not any will be necessary until the fruit is entirely removed, at which time the foliage may be cleansed and the border afforded water, together with an approved

fertiliser. Afford a night temperature of 65°, and by day 75° to 80°.

Succession Vineries.—Vines bearing heavy crops of Grapes, which are growing in well-drained borders, require abundance of water at the roots, and frequent surface applications of special Vine-manures, such as Thomson's or Le Fruitier, and tepid water to carry these to the roots. Apply a mulch of decayed farmyard or stable manure. Pinch out the points of lateral shoots at the least once a week, and endeavour to keep the foliage clean; and where time cannot be spared to cleanse the leaves infested by red-spider and thrips with a piece of sponge, make use of rain-water and a syringe, but do not continue this treatment after the berries begin to colour. As a last resource in such cases, smear the hot-water pipes thickly with flowers-of-sulphur, making them hot. Let this be repeated with closed ventilators for three or four nights, affording air early the following day. Thin the bunches of free-setting varieties before they come into flower, leaving one bunch on each spur, and when set, reduce the number to what is required for a crop. The lateral shoots or late Vines having been reduced to one on each spur, and stopped at one or two joints beyond a bunch, may be tied down to the trellis, doing this gently, and not all at once. Afford a moist atmosphere, and ventilation little or much, according to the state of the weather. The warmth at night may be kept at 65°, and by day at 75° to 80°. Young Vines planted last year, the rods of which were cut back in the winter, should now be making strong growth; and in order to strengthen the rods at the lower part, the points of the leading shoots should be pinched out when they have reached a third part of the space they will eventually occupy, allowing them to go without further stopping for the remainder of the season. Side-shoots should be stopped at the first joint. Afford water at the root, followed by a mulch of spent Mushroom-bed manure. Syringe the foliage on the afternoons of bright days, and close early at 85° to 90° solar heat, and afford a night temperature of 65°.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Seeds to be Sown Now. — The seeds of the Japanese Hop, Convolvulus major, Tropæolums, including the popular Canary-creeper, may be sown either in the spots where they are intended to flower, or in pots and boxes under glass. A few should in any case be sown under glass, such being useful for filling up blank spaces where seeds have failed to germinate, &c. If the early Sweet Peas are sown in positions from which they cannot be cleared during the summer, a few seeds of Canary-creeper can be dibbled-in along the rows. These will flower after the Peas cease to bloom. The dwarf Tropæolums are useful, quick growing annuals for covering dry banks and poor soil, and they should not be overlooked.

Hardy herbaceous plants are usually raised by division of the root mass, but it is well to raise some from seed in the hope of obtaining improved forms. Seeds that were saved last year may now be sown. Among these are the Foxgloves (Digitalis), especially the white and spotted forms. These are excellent group plants for planting in the wild garden, and they can scarcely be grown of too large a size for next autumn planting. A packet of seeds sown thinly now on good garden soil, will suffice to raise a few hundreds of Digitalis, germination being surer and quicker at this season than later in the year, should the summer be unusually dry.

Anemone coronaria, &c.—Young plants are always the best, and in some places older plants die out. By careful selection, good flowers of clear and attractive shades of colour may be obtained; a sufficient number of the best flowers should be marked as they open, and allowed to produce seed, which may be sown as soon as it is ripe.

Herbaceous Perennial Borders. — Such quick-growing subjects as Delphiniums and Pæonies may now stand in need of being staked. The common method of bundling each plant up to one stake spoils the beauty of the plant, and much more than this is necessary. The natural habit of a plant should be considered, and while affording sufficient support, the means by which this is attained should be hidden as much as possible. Many persons object to employ these plants for the sole reason that the stakes detract so much from the beauty of the plants. Some of the taller growing Michaelmas Daisies are improved in habit by pinching out the points of the leading stems, these breaking again, and furnishing the outside of the clumps with flowers lower down than would have been the case had the plants been allowed to grow naturally.

Shrubs.—Deciduous flowering and evergreen shrubs that have been recently planted must be well looked after in the matter of affording water at the root; for although they may have the appearance of being established plants, and are making growth, this is frequently due to stored-up sap, and does not go to prove that the roots are in a state of activity. All suckers should be removed from around bushes of Lilac, such being robbers, preventing the free setting of flower-buds on the older growths.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Peaches and Nectarines. — With more genial weather prevailing, disbudding and the removal of curled and blistered leaves should now be taken in hand. So far, the fruits in this garden seem unharmed; but it will be prudent not to thin them for another week or ten days, as some may yet drop off owing to the check inflicted by the recent frosts. Let the trees be thoroughly syringed with quassia-water, or the commercial extract of quassia or weak tobacco-water, to free them from aphis, washing this off the fruits, &c., the next day.

Apricots.—It is yet early to form an opinion as to what the crop of fruit is likely to be; but so far there are no signs of fruit dropping, although the foliage is injured on some of the trees, and it cannot be expected that the trees will recover from such a severe check without losing many fruits. It will be advisable to encourage the growth of shoots for a time, and to defer the stopping of the same till the growth is being freely made.

Plums and Pears on Walls.—Notwithstanding the protection afforded by double fish-netting, many of the earliest flowers and buds were injured by the frosts, excepting those of Marie Louise Pear, which as yet show no sign of injury. The nets should now be removed from the trees, and the injured leaves picked off, as if they remain, lurking places are afforded for aphides, &c.

Strawberries.—With the exception of a few fruits that were blackened by frost before the litter was laid on the plants, the blossoms are not damaged, and it is scarcely likely that we shall get more severe frosts this spring; still some dry litter should be kept in readiness to place over the plants should frosts threaten. Alpine varieties for fruiting in the autumn, also the variety St. Joseph, may now be planted out-of-doors. Remove the flower-trusses from the latter.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury.

Cœlogyne cristata and its varieties.—The plants have ceased to flower, and begin to make growth. At Westonbirt we winter Cœlogynes in a cool intermediate-house, remove them to a warmer house at this season, and increase the amount of water at the roots as growth advances, never allowing the plants to become quite dry. When large specimens are desired, the plants remain for a considerable length of time without being disturbed at the roots, the potting being carried out in a thorough manner when the masses are made up. If a number of specimens are being cultivated, it is advisable to repot one or two of them each year, so that a season's loss of flowers is scarcely felt. Having made a selection of the plants to be repotted, let them be turned out of the pans or pots, and shake the whole of the potting material from the roots, carefully pull the latter in pieces, removing all old pseudo-bulbs and dead roots, leaving three or four bulbs behind each leading growth. Having clean or new pans of suitable sizes, proceed to put in drainage to about two-thirds of their depth, and over this a layer of rough sphagnum, and then the compost, which should be roughish turfy-peat, loam, and the leaves of the Oak in equal proportions, adding a small quantity of sphagnum in a chopped-up state, with plenty of silver sand and small crocks. The masses should be made up in conical fashion, a commencement being made in the middle, packing the pieces securely with the potting mixture, copper-wire pegs being made use of in the work. Afford these masses a shady position. As some amount of shrivelling is sure to occur, syringe them overhead, and frequently damp the sides of the pans and the staging or benches in fine weather, which will encourage early re-establishment.

Dendrobium formosum is being largely imported, owing to the great demand for white flowers in the autumn. Imported plants soon start into growth if placed in a moist house. As soon as a start is made, put the plants into pans with plenty of drainage-materials, a compost similar to that employed for D. Phalænopsis in a recent issue. They will succeed in the same house as those, and should be suspended where there is plenty of light. Any plants that have been resting in the Cattleya-house since they flowered in the autumn should either be repotted or surfaced anew as may be required, and placed in their growing quarters, and have water sparingly applied till growth is well advanced.

Cattleya-house.—There should be a fine display during the present month in the Cattleya-house, many species and hybrids if not already in flower, being well advanced. I may mention Lælia purpurata, L. cinnabarina, Cattleya Mossiæ, C. Mendeli, C. Lawrenceana, C. Schroderæ, C. Skinneri, and numerous hybrids such as L.-C. Aphrodite, L.-C. Hyeana, L.-C. callistoglossa, L.-C. Canhamiana, L.-C. Latona, L.-C. highburyensis, &c., while the flower spikes are in course of development. The quantity of water afforded may be slightly increased, but it must be reduced when flowering is past. When the plants are in full flower, let them be grouped at the cooler and best ventilated part of the house, as many of the inmates of this house being now in growth and in need of much warmth and moisture, conditions that are not favourable to the prolongation of the flowering season. Any valuable weakly plant should have its flower-spikes removed as soon as they appear, in order to strengthen the growth.

THE APIARY.

By Expert.

Work Among the Hives.—The beekeeper will now find his time occupied in preparing the many things necessary for the coming season, such as making ready section-crates, each crate being numbered to correspond with the hive, a little wooden or metal label being placed either inside or outside the hive for reference, as hives are moved for various reasons. Frames should be made up and wired, to prevent the combs from bulging, and be placed in hives ready for swarms. Each stock should be frequently examined, and gently fed when necessary, wax-moths destroyed, and a look-out kept for ants, where they are numerous near to hives; and to prevent their nesting thereabouts, sprinkle a small quantity of benzoline or paraffin, mixed with water. Uncap one or two frames of honey where necessary. Place water at a little distance from the hives in a shallow pan, and place small pieces of stick in the water, so that the bees be not drowned when drinking. When examining bar frames, if a frame is black or defective, substitute another for it, and have these close at hand. Many bee-keepers make it a practice to place two new frames in each year, generally in the front, so that the hive is kept in good condition so far as the frames are concerned. Hives in need of a coat of paint should be attended to forthwith. The bee-keeper should be prepared for all emergencies, and not let the bees wait till the necessary articles are got in readiness.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, MAY 9—Royal Botanic Society Meeting.

MONDAY, MAY 11—United Horticultural Benefit and Provident Society Committees Meet.

FRIDAY, MAY 15—Royal Botanic Society, Lecture.

SALES FOR THE WEEK.

WEDNESDAY, MAY 13—
Palms, Plants, Dwarf Trees, Liliums, Geraniums, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Unreserved Sale of Nursery Stock, Palms, &c., at The Northumberland Nursery, Orpington, by Order of Mr. E. Ryder, by Protheroe & Morris, at 12.—Valuable Freehold Nursery and Orchard Garden, with two Residences and fourteen Greenhouses, Calcot Gardens, Bath Road, Reading, at The Mart, E.C., by Protheroe & Morris, at 2.—A compact Freehold Glasshouse Property, Dwelling House, ten Greenhouses, Mount Pleasant Nursery, Hailsham, Sussex, at The Mart, E.C., by Protheroe & Morris, at 2.—Palms, Lilies, and Bedding-out Plants, at Stevens' Rooms.

FRIDAY, MAY 15—
Importation of Cattleya Trianæ and consignment of Odontoglossum crispum, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —53·8.

ACTUAL TEMPERATURES:—
LONDON.—*May 6* (6 P.M.): Max. 61°; Min. 50°.
May 7 (Noon): 57°; showery.
PROVINCES.—*May 6* (6 P.M.): Max. 54°, S.W. Ireland; Min. 42°, Shetlands.

Royal Gardeners' Orphan Fund, Annual Festival.

THE fifteenth annual festival and dinner, in aid of this charity, took place on the 5th inst. at the Hôtel Cecil, Strand. Covers were laid for about 160 persons, and the Right Hon. the Earl CARRINGTON, G.C.M.G., presided. Amongst those present were Sir J. T. D. Llewelyn, Bart., and Messrs. W. A. Bilney, Harry J. Veitch, W. Sherwood, H. Williams, Geo. Monro, Arnold Moss, Geo. Cuthbert, J. Douglas, Geo. Paul, W. Cutbush, H. J. Cutbush, W. Watson, G. J. Ingram, W. Y. Baker, T. W. Sanders, H. B. May, J. Rochford, Rudolph Barr, J. McKerchar, J. F. McLeod, G. Reynolds, W. Roupell, W. Howe, J. Assbee, J. Poupart, A. Turner, Peter Kay, W. Bates, Brian Wynne, the energetic Secretary, &c. As is usual at these festivals, the room and tables were made beautiful with plants and flowers, contributed by several nurserymen and private cultivators. An excellent programme of music was given, under the direction of M. TURLE LEE.

After the Royal toasts had been drunk with enthusiasm, accompanied with musical honours, Lord CARRINGTON proposed the toast of "The Royal Gardeners' Orphan Fund," and described what a beneficent work is being done. Since the charity was founded, 179 orphan children have been elected to receive its benefits, including the twenty-four (the whole of the candidates) placed on the Fund in February last, in commemoration of the Coronation of His Majesty KING EDWARD VII., and Her Majesty QUEEN ALEXANDRA. During the sixteen years of the Fund's existence, the sum of £10,937 7*s.* 6*d.* has been expended in allowances; while during the same period, investments have been made to the amount of £10,825.

Lord CARRINGTON said he proposed the toast with pleasure, not only because the charity was a deserving one, but because it was well managed and solvent. The interest upon the accumulated funds covers all the expenses of management, and therefore the whole amount now subscribed and donated is available for the relief of orphans. Speaking of gardeners, his lordship said, in his experience the gardener upon an estate has generally a different position to that of most other servants. They are more connected with "the family," and in some cases seem to be part of "the family." He instanced the position Mr. McKellar used to fill at Sandringham, and of gardeners to his (Lord Carrington's) relatives, as Mr. Shingler, gr. to Lord Hastings; Mr. Allan, gr. at Gunton Park; Mr. Goodacre, gr. to the Earl of Harrington; and last, but not least, Mr. Geo. T. Miles, his own gardener, who had been intimately connected with his family for fifty years. Lady Carrington, himself, and children, regarded him as an old and faithful friend, whom he was pleased to see present at that table in good health. Lord CARRINGTON then spoke upon the subject of allotments for which he has worked hard, remarking that he was glad that things were now better than in the days when he succeeded to his father's estate, and old fashioned squires and clergymen thought that all the work labourers could possibly do belonged to the employer, and that they should do nothing for themselves. His Lordship referred to allotments at Wycombe and Spalding, and some now being inaugurated in Norfolk, and said that he thought the allotment holder should not pay more for his land than that paid by the adjoining farmer, plus the rates. Lord Carrington concluded by making an appeal for support. He supposed he was addressing representatives of what the French would call *petite culture*, and as an Englishmen, he would call a spade a spade, and ask them to send some cheques along to the Secretary.

Sir JOHN T. D. LLEWELYN responded, and at the outset referred feelingly to the death of Mr. Barron, the first secretary to the Fund. Continuing, Sir John made a spirited appeal for more annual subscriptions, and stated that the receipts from this source were not, in the opinion of the committee and himself, as much as they ought to be. He concluded with a peroration upon the importance, health-giving qualities, and productiveness of gardening, declaring, amidst applause, that "every boy ought to know how to grow a Potato, and every girl ought to know how to cook one."

The toast of "Gardeners and Gardening" was proposed by W. A. BILNEY, Esq., who caused some amusement by saying that the Secretary obtained a promise from him to do this when they met recently at an emporium in the City, where he heard it said 1,000 guinea plants of Odontoglossum crispum were occasionally sold for eighteen-pence each. We were undoubtedly progressing in the practice of gardening, and our methods and effects were better than they had used to be.

Mr. GEO. PAUL made a sympathetic speech in reply, and alluding to a remark previously made by Sir Jno. Llewelyn, said that nurserymen did not usually become millionaires. Frequently they were artists as well as tradesmen, and some methods were practised, and many plants were cultivated by them from other reasons than that of money. Gardening, said Mr. Paul, is becoming the favourite amusement of the people, old and young, rich and poor alike.

Mr. Arnold Moss proposed the toast of "The Visitors," and the Rev. S. B. Mayall responded.

The toast of "The Chairman" was proposed by Mr. H. B. May, who said the Fund had never been happier in the person of a Chairman at their festival. Lord Carrington was owner of an old-time garden at High Wycombe, and of an estate where changes of tenancies were rare, and evictions unknown. Beyond this, he had done much work in getting allotments for poor people. They thanked him heartily for his presence and support.

At this point the Secretary announced that the Chairman's list of subscription and Covent Garden Market list amounted to £380. Amongst the contributors were the following:—The Earl of Carrington, £25 10*s.*; Covent Garden friends, through Mr. Assbee, Mr. Poupart, and Mr. Monro, £121; N. N. Rothschild & Sons, £25; Alfred de Rothschild, 10 Gs.; Leopold de Rothschild, 10 Gs.; N. N. Sherwood, £25; A. W. Sutton, £25; Leonard Sutton, £5; Sir Weetman Pearson, £20; G. Cuthbert, 15 Gs.; J. F. McLeod, 12 Gs.; W. Nutting, 12 Gs.; Geo. Reynolds, 18 Gs.; James Veitch & Sons, Ltd., 10 Gs.; T. Blackwell, 10 Gs.; G. H. Richards, 10 Gs.; Henry Bull, 10 Gs.; Sir Jno. T. D. Llewelyn, 10 Gs.; T. W. Sanders, £10; Mrs. W. G. Head, £10; G. Caselton, 7 Gs.; Barr & Sons, 7 Gs.; Chislehurst Gardeners' Society, £8 16*s.* 6*d.*; W. Howe, 6 Gs.; Thames Bank Iron Co., 7 Gs.; Anthony Waterer, 5 Gs.; Dicksons, Ltd, Chester, £5; James Douglas, £6; H. B. May, 5 Gs.; The *Gardeners' Chronicle*, Ltd., 5 Gs.; Paul & Son, 5 Gs.; H. J. Veitch, 5 Gs.; Mrs. H. J. Veitch, 5 Gs.; W. Cuthush & Son, 5 Gs., &c.

After the Chairman had returned thanks, and Mr. H. J. Veitch (Mr. G. Bunyard being unable to attend owing to indisposition) had proposed the toast of "The Press," a response was made by Mr. T. W. Sanders, and the company separated.

THE "BOTANICAL MAGAZINE."—The May number contains illustrations of—

Rodgersia pinnata, Franchet, tab. 7892, a plant with its congeners alluded to by Dr. HENRY, in *Gard. Chron.*, August 23, 1902, p. 131. It flowered in the rock garden at Kew in 1902 from seeds sent from Yunnan, by Dr. HENRY.

Sempervivum urbicum, Chr. Smith, tab. 7893.—A species with erect panicles of yellow flowers, inhabiting rocks and walls in Teneriffe. The specimen figured was presented to Kew by M. VAN DEN BOSSCHE.

Sphedamnocarpus pruriens, Hook. f., tab. 7894.—A climbing shrub of the Malpighia family, with silky branches, shortly stalked oblong leaves, and panicles of yellow flowers about 1 inch in diameter. Native of S. Africa, flowered at Kew. What may be the meaning of the distressing name we do not know.

Hebenstretia comosa, Hochsutter, tab. 7895.—A South African herb, 2 to 3 feet high, with sessile oblanceolate glabrous serrate leaves and terminal close spikes of irregular pinkish flowers, belonging to the order Selaginaceæ.

Dissotis Mahoni, Hook. f., tab. 7896.—A creeping shrub from Tropical Africa, with ovate hairy leaves and large rosy-purple flowers, with the structure peculiar to the Melastomaceæ. Introduced to Kew from Uganda by Mr. JOHN MAHON.

KEW GUILD DINNER.—We are requested to remind our readers who are old Kewites that the Annual Dinner will take place at the Holborn Restaurant on the 25th inst., at 7.30 P.M., and that the Secretary, Mr. WINN, would be glad to hear before the 18th from all who intend to be present. The chair will be taken by Dr. SCOTT, F.R.S., and he will be supported by Sir W. T. THISELTON-DYER, Director of Kew, Sir T. H. ELLIOTT, Secretary to the Board of Agriculture, &c.

MR. LEOPOLD DE ROTHSCHILD has kindly consented to preside at the Gardeners' Dinner, which will be held at the Holborn Restaurant on Sept. 29 next.

PREVENTION OF CORRUPTION BILL. — The second reading of this Bill passed the House of Commons on Wednesday last, and was referred to the Standing Committee on Law.

FORESTRY.—Mr. F. C. MCCLELLAN has been appointed Professor of Forestry and Estate Management in the Royal Agricultural College, Cirencester.

Echoes from Ghent.—The arrangement of the plants in the central hall and annexe, which was so much admired for its beautiful effect, was the work of M. Charles Pynaert, son of the late Edward Pynaert. Though differing in detail considerably from the arrangement in 1898, the same use was made of the noble Palms and other foliage plants to screen the corners and the boundaries of the building, and M. Pynaert received universal felicitations.—We are informed that the stock of Genera reginæ, the beautiful flowering plant that was awarded 1st prize in the class for a new stove flowering plant, when shown by M. L. de Smet-Duvivier, has been acquired by Hern Ernst Benary, of Erfurt, Germany.—Visitors who stayed at the Hotel de la Poste, were much pleased with certain alterations and improvements that have been carried out there, and all appreciated the service and courtesy rendered to them by the proprietors and their assistants.—The need for a central bureau, where visitors might get their tickets and obtain detailed information respecting the functions at which they were invited to assist, was felt by many. A number of jurymen who were forced to remain in the street, outside the entrance to the Casino, during a blinding snowstorm on Saturday previous to the arrival of King Leopold, would have been saved much inconvenience if they had been better informed of the arrangements it was intended to adopt. In such an immense gathering it can hardly be expected that every detail should work perfectly smoothly, but more time was needed on the Friday morning for the appointment of the jurors to the various sections in which they were to officiate. There was confusion, and some jurors were unable to find their sections before part of the judging was already accomplished. These minor defects were compensated for by the cordial hospitality and kindness shown to the visitors.

Proliferous Cucumbers.—Mr. Humphrey sends us some remarkable illustrations of the production of shoots, leaves, flowers, and young fruits, from the apex of a Cucumber, similar to those of which we gave illustrations in our issue for September 21, 1901. To a botanist these are no "freaks," but only an illustration of Nature's methods. The outer part of a Cucumber is, as every botanist knows, a branch or shoot adhering to and concealing within it the true fruit, which sometimes, as in this case, protrudes beyond the sheath-like branch, as in the Turk's Cap Gourds. Being a branch, it is not remarkable for it to produce buds. We are informed that all the flowers on this particular plant behave in the same way.

Exhibition Schedules:—

The National Carnation and Picotee Society (Southern Section) has issued its Twenty-sixth Annual Report, which shews that there is a balance in hand of about £130. The names of the principal prizewinners at the show held in 1902, and the names of the varieties shown by each exhibitor are published, together with a schedule of prizes offered for competition at the next exhibition, which will take place at the Drill Hall, Buckingham Gate, Westminster, on July 21. This report and schedule, containing a list of classified varieties of yellow-ground Picotees, and of yellow or buff-ground fancies, may be obtained of the Hon. Sec., Mr. T. E. Henwood, Auricula Villa, 16, Hamilton Road, Reading.

The Yorkshire Gala and Horticultural Exhibition.—The schedule of prizes offered for competition at the next exhibition to be held at York on June 24, 25, and 26, 1903, provides £250 for Orchids, stove and greenhouse plants; £150 for Pelargoniums, Carnations, Begonias, &c.; £200 for Roses and other cut flowers; and £100 for fruits and vegetables, making a total sum of £700, and three Gold Medals. The classes have been altered a little in order to make the show increasedly popular, and an excellent exhibition is anticipated. Entries have to be made to the Hon. Sec., Mr. Fred. Arey, Davyhall Chambers, Davygate, York, on or before June 17.

Windsor, Eton, and District Rose and Horticultural Society.—After two years' interval, the next exhibition of this Society, on June 27, will be held on The Slopes, Windsor Castle, by the gracious permission of His Majesty the King. The Treasurer and Secretary, Mr. Hoddinott and Mr. W. C. Romaine, have been compelled to resign owing to private reasons, and the new officers are the Rev. S. K. Tahourdin, The Cloisters, Windsor Castle, Treasurer; and Mr. W. Titt, Thames Street, Windsor, Secretary.

Maize-breeding.—The *Agricultural News* calls attention to the experiments of Prof. Hopkins, of the University of Illinois, who has been experimenting with a view to meet the requirements of various manufacturers. Thus the grain of Maize contains starch, oil, and nitrogenous matter, or protein. Some varieties contain more of one ingredient, other varieties a larger proportion of some other constituent. The starch-maker requires a grain rich in starch, the cattle-breeders prefer a grain with a high percentage of protein, and so on. By careful breeding and selection, these several requirements can be met, and the quantity of protein raised from an average of 9·20 per cent. to one of 12·48 per cent. The increased profit obtainable from the same area is very considerable.

Fruit from Queensland.—The Queensland Citrus Fruit Growers' Association, which was formed last year for the purpose of organising the export of fruit in the coming season, hope to send forward shipments to London. Up to the present the Association has been bending its energies to the sale of fruit in New Zealand and other countries, but with the break-up of the drought it is proposed to ship to Europe. Grape-growing has been much increased in Queensland of late; the coastal districts from Bundaberg to the New South Wales border being particularly fitted for the industry. The following kinds are grown with success in the State:—Chasselas d'Or or Sweetwater, Précoce de Courtiller, Madelaine Augerine, Madelaine Royal, Luglienga, all early varieties, and Chasselas de Negrepont; Blue Portuguese, Black Hamburgh, Mrs. Pince Muscat, Muscat Hamburgh, Muscat Beaume, Ronsette, F. de Lesseps, Golden Champion, Gros Guillaume, and Wortley Hall. All these mentioned are European varieties. American varieties grown are Concord, Delaware, Wilder, Goethe, Iona, Alvey, and a so-called Wantage.

BOOK NOTICE.

A Book of the Country and the Garden. By H. M. Batson. (Methuen & Co., 36, Essex Street, W.C.)

Here is yet another book wherein notes about common plants, personal prejudices, village gossip, and domestic confessions, follow one another, or rather blend together in the now familiar way. We have Seraphina, Magdalen, and other dames into whose mouths Mrs. Batson puts strange words; here, also, is the inevitable old gardener and his lore—in fact, all the traditional characters of ladies' books on gardening wander about the pages, and say and do just what we have learnt to expect of them. The book is divided into chapters named after the months, beginning with March, and some have evidently been hard to fill with gardening notes only, hence the introduction of other subjects.

Here is a fair specimen of the writer's style when telling us of her plants: "I cannot understand," she says, "why Mignonette is such a fickle plant. I sow ounces of seed in all directions, but often enough none comes up. I fancy the chief reason is that the cold winds and late frosts of May kill the germinating property at its birth. The best plan is to make a series of sowings, when some will probably do well. It does not matter if the seeds come up sparsely, for one plant will cover a large area if the conditions are suitable; in fact, if the seeds come up plentifully a severe thinning will be necessary to ensure the best results. Why do most of my Columbines turn into old women's bonnets?"

In this strain Mrs. Batson fills a fairly thick book. Some of the matter has appeared previously in various magazines, but much of it is printed for the first time here, and is accompanied with many pictures.

If not strikingly original or helpful, our author writes in a kindly spirit, with tender words for all her characters; and if there is still an appreciative public for this style of writing, the book will find its niche, as it is written with an evident wish to please.

HOME CORRESPONDENCE.

Sessile and Pedunculate Oaks.—With reference to Mr. Simpson's last letter on this subject, I think that Mr. Robertson's statement as to the stagheadedness of the pedunculate Oaks which he has felled, and the vigour of the sessile Oaks he has left standing on the well-drained hill-sides above Chatsworth, afford sufficiently conclusive evidence as to the relative demands of these Oaks on soil-moisture. I do not consider the actual amount of rainfall of much importance in such places; on a steep hillside like that shown in Mr. Robertson's photographs, rain-water soon drains away. The Spessart is not in France, but in Germany, and the foresters there have not secured by the selection of seed a race of sessile Oaks, but have prevented the artificial introduction of pedunculate Oaks on a soil they consider unsuitable for that variety of Quercus Robur. Many continental Oak-woods have been regenerated naturally for thousands of years by acorns from trees growing *in situ*, and thus sessile and pedunculate Oaks have become gradually adapted to the conditions which I have described; in continental Europe accordingly we find an extreme form of Oak on comparatively dry hillsides, and the other on wetter ground, to the exclusion of the other extreme form, and of intermediate forms as well. Near the dry Russian steppes almost pure sessile Oak forests prevail. In Britain, during the last two centuries, native Oak forest growth has been greatly assisted and sometimes improved by plantations, chiefly of pedunculate Oaks. The sessile Oak, therefore, no longer alone occupies comparatively dry hillsides, though in the lowlands the pedunculate Oak practically monopolises the ground where Oaks are grown, and, as Mr. Simpson says, thrives even on wet sandy soil. When I mentioned that some clay in the soil was necessary for the well-being of pedunculate Oak, I should have added—on hillsides. When I speak of a certain site being more suitable for sessile than pedunculate Oak, I mean that the former will there thrive to maturity; on sites suitable for sessile Oak only, the pedunculate Oak may struggle on for 50, 60, 100 years or more—a short period in the life of Oaks, which, when healthy, live to a great age—but will never attain full commercial maturity. In the course of the struggle for existence between contending forms, Nature produces extreme types of a species which are suitable for their respective environments; intermediate forms cannot generally endure long in this struggle, so that although, in Britain, we have numerous intermediate forms of Quercus Robur, they are not usually found in countries where natural conditions have prevailed for ages, being killed out in the struggle of tall, close-growing forest trees towards the light. Dr. Mayr, of Munich, the distinguished Professor of Forestry, states that when pedunculate and

sessile Oaks are found growing together, the mixture is due to the hand of man. There is, therefore, no necessity for any very careful selection of soils and localities suitable for the various intermediate forms of Oak, but only for the extreme forms; and in localities where extreme conditions prevail, a prudent forester will cultivate the extreme forms of Oak only. Thus on land liable to inundation, he will grow pedunculate Oak; and on comparatively dry hill-sides he will grow sessile Oak. It is possible before the mountain hare and the common brown hare were differentiated from one another, that intermediate varieties of these hares abounded, and such varieties could possibly be obtained now under domestication. But when left to Nature the mountain hare, which turns white in winter, as well as the varieties intermediate between it and the brown hare, would soon become extinct in the lowlands; while the brown hare, and intermediate varieties that do not turn white in winter, would succumb to its enemies in mountainous districts covered with snow throughout winter. This analogy appears to hold good as regards the extreme forms of Oak and their intermediate varieties. Mr. Simpson reverts to the question of immature or abortive acorns, in spite of my proposal that it should be decided next August, but he has evidently not referred to my fig. 61 (*Gardeners' Chronicle* of September 22, 1900), or he would have seen that what he calls the full pedunculate acorn was from Cambridgeshire, which in autumn is hotter than the Peak district; the twig supporting this acorn was also picked later than the Chatsworth sessile acorns, and was consequently further advanced in growth than they. This controversy about the habitat of the extreme forms of the Oak could not have arisen among continental foresters, who would readily admit the different demands of the Oaks on soil-moisture, but would probably have criticised my attempts to explain these generally-accepted facts by the structure of the leaves and acorns, the distribution of the foliage and boughs of the respective trees, and by the nature of their bark. Such criticism I certainly expected when I wrote the original paper, but that a dispute should arise regarding the fundamental facts of the question shows how extremely artificial and remote from natural conditions our British Oak-woods have become. I am, however, quite ready to admit that our damp climate and the rarity of mountains in our Oak-growing tracts favours the pedunculate Oak, while planting the latter in the original habitats of the sessile Oak has favoured the increase of intermediate forms, the open condition of our woods preventing the natural struggle for existence, which would have eliminated these to a large extent. If our Oak forests were allowed to grow up to 200 years, as on the continent, we should not find many intermediate forms. *W. R. Fisher.*

LAMIUM ORVALA.—This, the finest of the Dead Nettle tribe, is seldom seen in gardens, but I mention it because it has attracted very favourable notice lately in my garden, more than once standing unhurt in the midst of wreckage caused by the late disastrous frosts. It is figured and described in an early volume, tab. 172, of the *Botanical Magazine*, and I copy a few lines of what Parkinson says of it, *Paradisus*, p. 3857. He calls it Lamium panonicum, or "Hungary Dead Nettle, or the Dragon Flower." "The stalks are great and four-square, having leaves and flowers standing round them at the joints like coronets, which flowers are very great, long, and wide, gaping open, of a dark-red or purple colour, and stand in full flower two or three months most usually, and sometimes longer, after which come brownish seed. The root increaseth every year, not fearing the greatest injuries of our coldest and extremist winters." I had the plant first from the late Mr. Harpur Crewe, with whom it was a favourite. It is better suited to a shady wilderness than a border of choice plants, but is remarkably handsome in its way. *C. Wolley Dod, Edge Hall.*

THE ROYAL HORTICULTURAL SOCIETY AND ITS ACCUMULATIONS.—If last year beat the record in the number of new Fellows added to the Society's roll, some 1,140, there is promise this year that the number will be exceeded, as in four months alone there have been added no less than 605. Certainly, all is not profit, as there was a loss of Fellows last year numbering 236, leaving a net increase of 904. Still, that represents a net increase of income of £1,152—a really wonderful advance. Of course, all is not actual profit, as every new Fellow entails certain expense which has to be met, but all the same, a large portion of such additional income is carried to capital account. When the present year closes, and allowing for deaths and resignations, the Fellows will number in round figures 7,000. That is a huge number, and to meet such growing requirements what is going to be done? It is very evident that the Council cannot provide its new Hall too soon. The increase in number of Fellows is rendering that need greater at every meeting. Can the Council, ere it is too late, take any steps to enlarge the area of the new Hall? as it seems as if in some five years, at the present rate of progress, there would be just as much congestion in the proposed new Hall as there now is in the Drill Hall. Unless something in that direction be done, the Council will have to definitely fix its Fellows' numbers, and from that time fill vacancies only. But what is it purposed to do with the large sum that is being rapidly accumulated in the form of invested capital? Last year's report shows that at the conclusion of the year there was invested, on deposit and in the bank, no less than £16,000; and at the end of the present year that amount should be increased to at least £18,000. How long is this accumulation to go on? Is it quite fair to go, as the Council is now going, cap in hand, begging for money for the new Hall, and out of its huge funds, give nothing? Surely, £5,000 at least should be so voted, and then leave in hand a sum more than ample to meet all contingencies, even to the furnishing of a new garden. *A. D.*

TRIALS AT CHISWICK.—Whether the Royal Horticultural Society's garden at Chiswick be soon disposed of or not, in any case it seems determined to utilise it well so long as it does remain the Royal Horticultural garden. This year there are a great many vegetable trials, and the Fruit and Vegetable Committee may find that in this direction its members will find their office no sinecure. Happily the members like to be called to Chiswick, as the gatherings there lack that stiffness and formality which is the chief feature of the Drill Hall meetings. Therefore with them their motto is "The more the merrier." Not that when at Chiswick the members assume the habits of youth, but are rather grave and reverend signiors until the actual work is accomplished. They will therefore be pleased rather than dismayed to learn that Mr. Wright, the Superintendent, has about 90 stocks or varieties of Peas all now well up; also as many of Potatos, already some time planted; about 30 stocks of Runner, and 40 of Dwarf Kidney Beans. Some 30 or more diverse varieties of Vegetable-Marrows, numerous Tomatos; and there is already seed sown for June planting a number of varieties of Cabbage, which may perhaps be in good form with the late Potatos. When the great Fruit and Vegetable Show is held in the gardens, there will be, of course, some work also for the Floral Committee to do; and one of the most interesting trials, no doubt, will be the collection of comparatively new Cactus Dahlias, which will be chiefly tested for their merits as decorative plants in the garden. Apart from other things, it is feared the weather of the last month has robbed the garden of much of its customary interest by the damage done to the fruit crops, yet is it evident that there is a good deal of life in the old garden yet. Its chief difficulty seems to lie in the excessive drainage to which the ground is now subjected, and by which the moisture in the land is drained away. Still, we may hope to see useful work done at Chiswick yet. *A. D.*

THE BIRDS AND FRUIT-TREES AND BUSHES.—What the late frosts did not destroy, bullfinches seem intent upon completing, these birds having been exceptionally destructive to the fruit prospects in this locality. By May 4 they have almost stripped in one day two large Codlin Apple trees not only of buds, but expanded flowers, which they pull off and let drop, not even touching any portion of them; and although we have shot and trapped the whole winter, they seem as numerous as ever. A neighbouring gardener friend of mine has had the whole fruit prospects of two orchards spoilt quite recently by these birds. Have any of your other correspondents experienced the same trouble with trees so far advanced? *A. W., Eye, Suffolk.*

BLUE HYDRANGEAS.—I notice Mr. Lupton's remarks on p. 276 in your last issue, and I remember about twelve years ago a gardener (the late Mr. J. Wright) of Beachwood, Roundhay, who used to grow a lot of Hydrangeas, especially Thomas Hogg, the greater number of which showed more or less a blue tint. I obtained several cuttings from him, but never got one of them to come of a blue colour. The soil they were grown in was a light sandy loam. At Beachwood the soil is much stronger than ours, hence I think the results were due to this. We have received several varieties from Japan which have been potted, but in different kinds of soil, and I am curious as to the colour of their flowers. *Hy. Foster, gr., The Lodge, Doncaster.*

THE EFFECTS OF THE RECENT FROSTS AT BELVOIR.—Until Wednesday morning, April 22, the fruit crops had not suffered to any great extent from frost, although the minimum thermometer showed 7° of frost on several mornings, and 14° on the grass, but the weather was bright, and the low temperature lasted only for a short time, everything being also dry; but on the 22nd the sky in the early morning was cloudy, and a very thick hoar-frost lay on everything, the lowest reading on the stand being 26°, or 6° of frost, and on the grass 19°, or 13°, and the next morning the frost was still more severe, 9° on the stand, and 17° on the grass. Much of the Apple blossom was killed, and although the buds were quite small, many of them were black inside; the same may be said of Strawberries, Raspberries, and Currants. Gooseberries were well out in leaf, and some of the fruit has escaped. Some of the Pears on pyramids were set, and they look sound at the present time, while those on wall-trees were being well protected with the foliage, there are still enough fruits left for a crop. The same is true of Plum-trees on walls, but orchard standards and Damsons are finished. So far, the Loganberry appears to be the only fruit that is not damaged; the Wineberry, Rubus phœnicolasius, has its young shoots severely cut. Apricots and Peaches are much damaged both in fruit and foliage, although the trees were covered with double fish-nets, and are planted against south walls. Among shrubs and trees, Andromeda formosa and A. ovalifolia have the young shoots killed; Arbutus Andrachne and Choisya ternata, just opening their flowers, are unhurt; whilst those of Magnolia Soulangeana, on a south wall, are killed. The young growths of Rhus Toxicodendron are killed, all the flowers of Rhododendrons when open are destroyed, and Dimorphanthus mandschuricus has all the young leaves killed; Camellia flowers were all browned by 2° of frost on the morning of the 13th. Banksian and other Roses suffered severely; the young shoots on Acer polymorphum atro-purpureum have not suffered greatly, but a few are killed; the common Elder is much cut in places, but the flowers of Berberis Darwini are unhurt. Of herbaceous plants, Gunnera scabra, G. manicata, and Rodgersia podophylla, have the young leaves killed, although the plants were protected; Lilium Henryi, 15 inches high, is killed at the top, while L. excelsum, L. japonicum, L. tigrinum, and L. candidum, in the same bed, are uninjured; L. pyrenaicum, our earliest flowering Lily, is only just pushing through the surface, and L. pomponium is about the same. In a large collection of Narcissus N. Glory of Leyden has withstood the frost the best, and is in perfect condition; N. P. R. Barr is almost as good. N. bicolor Grandee is only just commencing to open; and the great value of a small amount of shelter is shown by Emperor, Empress, and Barri conspicuus under deciduous trees, these being unhurt. The spring bedding plants are with one exception uninjured, the sufferer being Myosotis dissitiflora and its varieties alba and Dyeræ; all the others look well, although scarcely any progress during the cold spell was noted, and they will now, if mild

weather continue, be at their best during the second week in May instead of the third week in April. It is a consolation to find something hardy enough to go through such a severe time uninjured. *W. H. Divers.*

ANTIGONON LEPTOPUS (see p. 277) is flowering somewhat freely now in a stove at Kew. It is planted in a shallow border, and the shoots are trained under the ridge of the house, which is kept moist and warm for the Nepenthes grown in the same house. Generally, this beautiful tropical climber is a failure as a garden plant in Europe, although in tropical countries it is most attractive in its profusion of long, loose racemes of bright rosy-pink flowers. *W. W., Kew.*

—— Your correspondent "Wm. W." asks for instructions how to flower this handsome climber. I had to do with the plant that first flowered in this country, and have flowered it since at will without trouble or difficulty. "Wm. W." spoilt his chance of flowers by cutting the plant back, for like very many other climbers, it must be allowed to reach its flowering points, and to attain flowering strength. If ordinary stove treatment is given in a fairly sunny house, and then if two or three strong shoots are allowed to grow without restraint, flowers are certain to be produced at their extremities. Weak side growths are useless, and may indeed be harmful, on account of competition, and should be removed. One often sees this plant a tangle of weak growths, which in Nature would never run to flower. The plant from which the figure was prepared for the *Botanical Magazine*, t. 5816, was trained on a string, and grew in a 6 or 8-inch pot. Plants of this description often do endeavour to make new and strong shoots from about the base, but rather than take trouble with weakened plants, I would prefer a fresh start from seed, growing on direct; and flowers may be expected, I think, the second year. *R. Irwin Lynch, Botanic Garden, Cambridge.*

BUNCH PRIMROSES.—I must beg to differ from Mr. Tallack's statement, on p. 279 of the *Gardeners' Chronicle*, that it is not advisable to divide "bunch" Primroses. I have to propagate a large number of the Polyanthus, or bunch Primroses, and find on the very sandy soil of this garden that division immediately after flowering, and a mulch of decayed leaves, will produce plants larger than any seedlings I have ever seen. Another advantage is, that one is sure of the particular colour that one is after. A great deal can be done by a careful selection of colours to work up a good strain that will be superior to anything raised from purchased seed. I sow a few packets of seed each year, but find that two years are required to make the plants fit to look at. *Old Kewite, Haslemere.*

BRANCHING TULIPS, ETC.—Some time ago I forwarded specimens of Darwin Tulip "La Tulipe Noire," with one to five blackish blooms borne on the same stalk. This variety has grown in this way all the years that I have been cultivating it, so that it appears probable that some day, if carefully grown, even more flowers will be borne on one stem. This month my hybrid Yucca Treculeana × gloriosa will flower for the first time. This plant I wish to name after Mr. Elwes, who lately saw it in my garden. It is a fine plant, and I hope to send you photographs of it. In April I had in the garden an Iris Susiana with sixty large flowers that was much admired. *Karl Sprenger.*

DAMAGE BY FROST AT HALTON, NEAR AYLESBURY.—During the last fortnight we have, at Halton Gardens, suffered severely from the effects of the late frost, the amount as registered being on the morning of the 12th, 3°; 13th, 4°; 14th, 6°; 15th, 0°; 16th, 12°; 17th, 10°; 18th, 12°; 19th, 11°; 20th, 7°; 21st, 0°; 22nd, 2°; 23rd, 12°; 24th, 7°; and 25th, 9°. There was every promise of a grand fruit season, bloom in splendid profusion, but alas, now! Gooseberries, Currants, Pears, Plums, Apricots, Peaches, and Nectarines (the three latter on a south wall, and protected by double netting), in particular have suffered, not a sound fruit being left on the trees. Apples, although not so far advanced, have suffered severely, for on examination of the bloom-buds, pistil, stamens, and ovary, are found to be destroyed. Of Cherries, 90 per cent. are ruined, as also the earliest trusses of Strawberry-blooms. In the flower-garden Roses, thousands of which were forward in growth, are cut back; foliage of early-flowering Gladiolus cut to the ground, beds of Lilium speciosum ruined. Herbaceous Pæonies have their blooms destroyed, and so also is the new growth on Box edging. *G. C., Halton Gardens.*

FROST IN APRIL. — Severe frosts were registered here from April 13 to April 25. The readings were taken in the valley, close to the River Mole:—

April 13, 27° F. = 5° of frost.		April 20, 20° F. = 12° of frost.	
,, 14, 25° F. = 7°	,,	,, 21, 31° F. = 1°	,,
,, 15, 30° F. = 2°	,,	,, 22, 29° F. = 3°	,,
,, 16, 18° F. = 14°	,,	,, 23, 17° F. = 15°	,,
,, 17, 17° F. = 15°	,,	,, 24, 26° F. = 6°	,,
,, 18, 18° F. = 14°	,,	,, 25, 22° F. = 10°	,,
,, 19, 19° F. = 13°	,,		

I enclose a few growths, to illustrate the damage done to vegetation. *Geo. Kent, Norbury Park Gardens, Dorking.*

THE SEEDING OF DOUBLE WALLFLOWERS.—Some years ago it was stated in the *Gardeners' Chronicle* that double Wallflowers did not produce seed. Since then I have succeeded in growing extensively double Wallflowers in pots for the production of seed. I annually choose the best and most double specimens for the purpose, and am glad to say that the percentage of double flowers that come true from seed is so large, that from a hundred double flowers only one or two plants with single blooms are produced. Very few plants of the best double Wallflowers fail to produce seed-pods as freely as do the semi-double and single varieties, though the latter produce a larger number of pods, and of seeds in the pods. *F. Roemer, Quedlinburg.*

THE LATE ANDREW PETTIGREW.—It was with great regret that I read the news in the *Gardeners' Chronicle* of the death of Mr. Pettigrew. I saw him at the last Royal Horticultural Society's show in the Temple Gardens, when he appeared to be in good health. An old pupil of his, I am enabled to speak from personal knowledge. He was a strict disciplinarian, yet a kindly man withal, and one who always took an interest in the welfare of the young men serving under him. There are few gardeners who possess such a good knowledge of British plants as he did, and he always impressed upon his pupils the value of such a knowledge. I think he was never better pleased than when he had his pupils with him of an evening, giving them instruction in preparation of garden plans, in botany, and kindred subjects. He held the opinion that a man who professed to be a gardener should know everything that appertained to his calling. The writer was with him when the vineyard at Castle Coch was planted, and the alterations and improvements in the gardens and around the Castle were undertaken. There was much laborious work done in those days, and those who took part in it are now widely scattered, some in the United States of America, and in various parts of the country, yet which of them will not read the news of his death with regret. Pettigrew's ability as a gardener is well known, and was far above that of the average gardener. *T. H. Slade.*

LOSS OF TULIPS AND OTHER BULBS THROUGH PHEASANTS.—It may interest some of your readers to hear our experience regarding the demolition of Tulip and other bulbs by pheasants during the last three months here. From careful observation we became aware that the harm was being done by a comparatively limited number of birds, chiefly hens, who are far bolder and less easily scared than the cocks. Indeed, nothing stopped them, and when driven off from one place they ran round to another, and renewed operations. We tried black sulphur, solution of quassia chips, scarecrows, strings tied across the flowers to pegs, and tins which rattled when the strings were touched. But they minded nothing, and with great regularity dug out three or four bulbs apiece morning and evening. One of your correspondents wrote saying the only remedy was catching or killing them, and this we have found to be the case. We have used for the purpose wire netting traps, so contrived that the birds can creep into them, but cannot get out again, and with wheat placed in the opening and inside the netting, we have caught up a good number. A few who still preferred the bulbs to the wheat have been destroyed, and at last we are at peace; not however until they have cleared some borders and beds entirely of every Tulip, Ranunculus, Fritillaria, and many other choice bulbs. We can only hope that a scarcity of Acorns may not occur again, and that this heart-breaking experience may not be repeated, but in case it ever should, we shall be forewarned and know what measures to adopt without any loss of time. *Kalie Cowper, Panshanger, Hertford.*

Obituary.

JOHN BAIN, A.L.S.—The death of Mr. John Bain, which recently took place at Holyhead, removes another of the few remaining landmarks that have served to bind the good gardening of the past with that of the present day. Mr. Bain was of Scottish parentage, but was born in Ireland in the year of Waterloo, viz., 1815, his father having settled there as a gardener and land steward at an earlier date. Had Bain lived until May 9, 1903, he would have attained his eighty-eighth birthday. Very early in life he had acquired a sound, practical knowledge of his father's calling, and after some further experience in private gardens, and in the celebrated old Physic Gardens at Chelsea, under Mr. William Anderson, he, as an active and studious young man, entered the Trinity College Botanical Gardens, then under the curatorship of James Townsend Mackay, LL.D., author of the *Flora Hibernica*, and one of the most enterprising of the earlier students of the Irish flora. Mackay had founded the College Garden about the year 1806 for the Dublin University authorities of that date, and being a man of character and influence, he attracted around him men who afterwards became celebrated as horticulturists, both at home and abroad. Amongst these were James Fraser, who became in after-life a noted landscape gardener, and also the author of a useful *Handbook for Ireland*, and other topographical works.

David Moore, afterwards Dr. David Moore, of the Glasnevin, or Royal Botanical Gardens at Dublin, was also a student under Mackay, before he joined the Ordnance Survey of Ireland as botanist, and his younger brother, Charles Moore, was also employed there before he went, on the advice of the late Dr. John Lindley, to Australia, as Director of the beautiful Botanical Gardens of Sydney, New South Wales. The late Mr. Ambrose Balfe, sometime Secretary of the Royal Horticultural Society of Ireland, in Dublin, and last, but by no means least, Mr. John Bain also belonged to this distinguished coterie. Bain became foreman, and eventually assistant Curator to Dr. Mackay, whom, as a friend and amanuensis, he assisted in the preparation of the *Flora Hibernica* and other works. On the death of Mackay, in 1862, Bain succeeded to the Curatorship, and the University Botanical Gardens under his care took on a second lease of usefulness and popularity. He was all his life a keen and ardent botanist, and he, to the last almost, retained an accurate and critical knowledge of native plants; while his skill and success as a cultivator of choice exotic vegetation was very often the wonder, and now and then even the envy alike of his horticultural contemporaries. Thoughtful, humorous, and observant, he hated dogma or mere routine, and he was one of the first to adopt a cooler, more airy, and rational treatment in the growth of Orchids and other exotic plants. His common sense and careful methods of cultivation were seen and recognised by some of the most noted and enlightened botanists, nurserymen, and amateur cultivators of his time. Amongst those who admired and bore testimony to his skill were Professor Allman, Dr. William

Henry Harvey, Sir W. J. Hooker, the late Mr. James Veitch, and his friend and foreman, Mr. John Dominy. The Rev. Wm. Ellis paid a visit to the gardens, and sent Bain plants of the Ouvirandra, Angræcums, &c., which he had discovered during his travels in Madagascar.

Dr. Gardner also sent Mackay and Bain plants of the original Cattleya labiata, and Zygopetalum Mackayi, &c., which he had found wild in Brazil. Dr. W. H. Harvey had the highest opinion of Bain, who was greatly delighted by Harvey saying that the large-flowered Disa, as grown in the College gardens, was as fine as those he had seen growing on Table Mountain, when he was secretary to the Governor at the Cape of Good Hope. With all these, and many other plants at that time rare, such as exotic Droseras, Sarracenias, Cephalotus, and Vanda cærulea, Bain was especially successful, and that at a time when their rarity and value were great, and their cultivation generally but little understood.

Visitors to the University garden were many and select in those days, some being of high social and scientific or literary standing. These included not alone the college dons, and the eminent physicians and surgeons, like Stokes Crampton, Corrigan, Hudson, Butcher, and many others, but even the great Archbishop Whately and other divines enjoyed Bain's society and conversation amongst his plants; and Whately especially enjoyed his society and information, and was one of his most constant visitors. Although Bain wrote but little himself, he was never weary of aiding others by his clear-sighted advice, or by his genial criticism. The late Mr. Wm. Archer, F.R.S., Librarian of the Royal Dublin Society, and eventually of the new National Library; the late naturalist, Mr. A. Godman More, F.L.S.; and Mr. Thos. Bewlay, one of the most generous and princely of Dublin merchants of the last century, and an enthusiastic amateur grower of choice exotics, were amongst Bain's most loyal and intimate friends.

During his younger days at the College Gardens, Bain was a zealous and active collector, and he rendered Dr. Mackay great assistance in his morning lectures, as also on the occasions of the field botany or collecting expeditions, then very popular amongst students of botany and others in Dublin. Even late in life, both at Dublin and at Holyhead, Bain would walk miles, and often did so in order to show the present writer the wild habitats of rare native plants. To Bain both myself and many others owed our first glimpse of such uncommon plants as Gentiana Pneumonanthe, Listera cordata, Malaxis paludosa, Isoetes lacustris and I. Moorei, Trichomanes radicans, Hordeum sylvaticum, and Malva rotundifolia, both of which were found by Bain in the neighbourhood of Dublin. An excellent wood-cut portrait of John Bain was published in the *Garden* for June 26, 1889, the volume being dedicated to him as having been connected with the College Botanic Gardens, Dublin, for a period of about fifty years.

Although of a nervous, sensitive, and retiring disposition, he could hold his own with the best; and was ever genial and generous to all those who really knew and respected him, and to such of these as he leaves behind his memory will long remain green.

He never married. He died peacefully, as Mrs. W. Wilson, his niece, informs me, at Holyhead, on Tuesday, April 28, at 2 P.M., and he was laid to rest near the avenue of quaint old gnarled Hawthorns in Mount Jerome Cemetery at Dublin on the first day of May, beside his brothers Robert and William Bain, James Fraser, Dr. Mackay, and other of his old friends who had already "crossed the bar."
F. W. B.

A Date-leaf Boat.—Dr. D. Fairchild, of the U.S. Department of Agriculture, describes and figures in the *Botanical Gazette* a boat made use of in the Persian Gulf, and consisting of the midribs of the leaves of the Date Palm. These strips are about 1½ inch in diameter, 10 ft. long, and fastened together by wooden pegs and strong twine. The coast is so barren that no wood is obtainable, the only trees being a few Date Palms planted by the English around the telegraph station at Jask.

SOCIETIES.

ROYAL HORTICULTURAL.

May 5.—Another brilliant display was made at the Drill Hall, Buckingham Gate, Westminster, on Tuesday last, and the view obtainable from the gallery was exceedingly pretty.

The Orchid Committee recommended Awards of Merit to a variety of Odontoglossum crispum, and a variety of O. cirrhosum; also a Botanical Certificate to Megaclinium Imschootianum. Several groups of Orchids were shown, and six Medals awarded.

The Floral Committee recommended a First-class Certificate to Kalanchoe × Felthameosis, from Messrs. Jas. Veitch & Sons, and five Awards of Merit to varieties of Acer, Anemone, a Rose, Canna, and to Psoralea pinnata.

The Fruit and Vegetable Committee made no Award to a novelty, and there were not many exhibits for inspection.

The Narcissus Committee recommended Awards to six varieties of Narcissus, and to two Tulips.

In the afternoon there were about seventy new Fellows elected to the privileges of the Society; and the Rev. Prof. Henslow delivered a lecture upon "Peculiarities of the Cape Flora."

Floral Committee.

Present: Geo. Paul, Esq. (in the Chair); and Messrs. C. T. Druery, Jas. Hudson, J. Green, A. Perry, J. Jennings, W. Bain, C. R. Fielder, Chas. Dixon, C. J. Salter, Chas. Jeffries, H. J. Cutbush, J. W. Barr, R. C. Notcutt, W. P. Thomson, E. H. Jenkins, M J. James, Geo. Gordon, Ch. Blick, and E. T. Cook.

Mr. H. B. May, Dyson's Lane Nurseries, Upper Edmonton, showed a large group of zonal Pelargoniums and Ferns. Several plants of a variety of Pelargonium were grouped together and isolated from other varieties by a groundwork of Ferns. Some of the best single varieties included Candace, rich bright scarlet or crimson; Conan Doyle, rich salmon; Hall Caine, clear scarlet; King Edward VII., crimson flowers, small; and Ada Negri, white ground shaded with rose colour toward the margins. The double and semi-double varieties were more numerous, and included Lady Ilchester, pink; Achievement, rich rosy-pink, very large in truss and flower; Princess Victoria, a Picoteelike flower; and Madame Carnot, white, or with a faint tint. There were several Ivy-leaved varieties, amongst which one named Leopard, with rosy lilac flowers, blotched with deep red, was striking. A variety of Verbena hybrida named Miss Willmott had rich pink flowers (Silver Banksian Medal).

Messrs. J. Cheal & Sons, Lowfield Nurseries, near Crawley, exhibited sprays of flowering trees and shrubs, amongst which Cytisus albus was conspicuous; also C. purgans (yellow), Magnolia stellata, Pyrus Malus Scheideckeri, Magnolia Lenne, Amelanchier canadensis, &c. A few dwarf alpine plants in flower were shown from the same nursery.

Messrs. Geo. Jackman & Son, Woking Nursery, Surrey, exhibited a very interesting collection of hardy plants in flower, the centre of which consisted of fine plants of Cypripedium spectabile, C. acaule, C. calceolus, C. parviflorum, C. pubescens, and C. macrantha. Primula sikkimensis was strongly in flower, also P. rosea, several varieties of Phlox, Incarvillea Delavayi, &c. A plant of the double Gorse was well covered with its rich yellow flowers, that have a scent quite similar to that of Cocoanut-pulp (Silver Banksian Medal).

Eight fine plants of Schizanthus wisetonensis from W. D. James, Esq., West Dean Park, Chichester (gr., Mr. W. H. Smith), attracted much attention. The plants were in 8-inch pots, 2 to 2½ feet high, and the mass of flowers 1½ foot through. They were the best plants of Schizanthus we have seen for a long time past (Silver Banksian Medal).

A group of Richardia Elliottiana was shown by W. L. Cohen, Esq., Round Oak, Englefield Green (gr., Mr. A. Sturt). The group included probably six dozen plants, well grown specimens, and all in flower (Silver Banksian Medal).

Messrs. T. S. Ware, Ltd., Feltham, Middlesex, showed a large bank of hardy flowers, including a group of Moutan or tree Pæonies in pots. Amongst these latter were the varieties lilacina plena, Archduke Ludovico, Robert Fortune, very bright red colour; Zenobia, rich purplish-crimson; Blanche de Noisette, white, &c. (Silver-gilt Flora Medal).

The Misses Hopkins, Mere, Knutsford, Cheshire, exhibited a few hardy-flowering plants in pots, including a batch of a yellow-flowered Auricula, named Alexandræ.

Anemones of the St. Brigid strain were shown very finely by Mr. E. Potten, Camden Nursery, Cranbrook, Kent. The sixty or so bunches of flowers contained infinite variety in colour, and the flowers were large in size.

Mr. Chas. Turner, Royal Nurseries, Slough, exhibited a group of Caladiums, being cleanly grown plants of such good varieties as John Laing, Excellent, Golden Queen, Assunguy, Charlemagne, and a few newer ones.

Roses from Messrs. B. R. Cant & Sons, The Old Rose Nurseries, Colchester, were very praiseworthy, the attractiveness of the collection being largely due to 15 plants of the new climbing Rose known as Blush Rambler, which will make a lovely companion for Crimson Rambler, the flowers being pink with white centre. The plants shown varied from 2 feet to 4 feet high, and were quite wreathed with bloom, which, being arranged along the centre of the exhibit, had a beautiful effect. In front of these were bunches of H.P., H.T., and T. Roses in numerous varieties (Silver-gilt Flora Medal).

Messrs. Frank Cant & Co., Braiswick Nurseries, Colchester, exhibited some cut Roses of very charming varieties. Excellent specimens of the pretty H. T. variety Prince de Bulgarie, rich apricot colour; Lady Roberts, Beryl, Yellow Tea, and other new ones, as well as good older varieties.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr., Mr. Bain), again exhibited flowering growths of the "Knoll" variety of Lapageria rosea, which has been figured in these columns; also a fine plant of a pretty plumose variety of tender Asparagus, under the name of A. Sieberianus.

Messrs. W. Cutbush & Sons, Highgate Nurseries, London, N., and Barnet, Herts, exhibited a group of Ericas, showing E. Bothwelliana, E. Cavendishii, E. rubrocalyx, E. ventricosa rosea, E. v. tincta alba, E. persoluta alba; also finely-flowered plants of Boronia heterophylla, and Clianthus puniceus.

Mr. Amos Perry, Hardy Plant Farm, Winchmore Hill, London, N., exhibited a pretty collection of alpine and other hardy flowering plants. Gentiana verna was shown very naturally, and in excellent colour. Other plants included Lithospermum canescens, Meconopsis cambrica plena (double Welsh Poppy), Anemone thalictroides; varieties of Alyssum, &c. (Silver Banksian Medal).

F. G. Lloyd, Esq., Langley House, Langley, exhibited Rubus reflexus (moluccanus), an old plant that appeared new to most people at the Ghent Show.

Martin R. Smith, Esq., The Warren, Hayes, Kent, exhibited two choice varieties of Souvenir de la Malmaison Carnation: Sarah Bernhardt, reddish-salmon colour; and Yellow Girl, yellow. Blooms were also shown of the border variety Lady Hermione, in colour a salmon shade of red, of large size, and extra good form.

Dr. Bonavia, Worthing, exhibited a cross-bred Pelargonium, flowers of Solanum jasminoides, and of the white variety of Nerium odorum.

A clump of a good variety of Forget-me-Not named "Warley" was shown by Miss Willmott (Vote of Thanks).

Messrs. J. Veitch & Sons, Ltd., Royal Exotic Nursery, King's Road, Chelsea, showed a number of plants of Schizanthus Wisetonensis, dwarf, and consisting mostly of varieties having light coloured flowers. The height of the plants rarely exceeded 1 foot (Silver Banksian Medal).

Messrs. Hugh Low & Co., Nurseries, Bush-hill Park, London, N., likewise showed Schizanthus Wisetonensis, showing considerable variety of colour, the height of the plants 1½ ft. above the pots. They also showed Erica magnifica, a much constricted flower of a light pink colour, the plant being profusely flowered.

Mr. Geo. Mount, Exotic and Rose Nursery, Canterbury, exhibited a large number of splendid blooms of Roses, Teas and H.P.'s chiefly, some cut with short stalks, and set in small bottles sunk in beds of moss in show boxes; and others cut with long stalks and set up in deep bottles. Very fine blooms were noted in Captain Heywood, Mrs. J. Laing, Ulrich Brunner, Caroline Testout, Mildred Grant, The Bride, Catherine Mermet, General Jacqueminot, Bridesmaid, and Prince Arthur. It is almost invidious to select where all were so good. The American Rose, Liberty, of a deep crimson colour, admirably fitted for personal decoration, was nicely shown, but the flowers are small (Silver-gilt Flora Medal).

The Guildford Hardy Plant Nursery, Mill Mead, Guildford, showed a quantity of hardy alpine and rock plants. There were noted the handsome Geum Heldreichi, a bright orange-coloured flower; Pulmonaria ardernensis, Iris pumila cœlestis, of a cœrulean blue colour; Convolvulus Cneorum, Veronica Fairchildi, having flowers of a pale lilac hue; Cytisus Ardoinei, Cheiranthus Allioni, &c. (Silver Banksian Medal).

Messrs. Gilbert & Son, Dyke, Bourne, Lincolnshire, showed a brilliant collection of Anemone fulgens, A. coronaria, and A. c. King of Scarlets, Chrysanthemum-flowered. A. St Bridgid, semi-double, and several coloured. A. fulgens The Queen is a single flowered variety, of a salmon-red hue, and black anthers. Of A. fulgens this firm showed four varieties, differing in form and colouring, A. f. oculata being one of the prettiest (Silver Banksian Medal).

Messrs. R. & G. Cuthbert, Southgate Nurseries, Middlesex, showed Rhododendron Sekoto, a rich crimson, without spotting on the flower, and moderate-sized truss; and Constance, a pure white flower, set in compact trusses of moderate size. The Toreador was a variety not differing much in tint from Sekoto. R. The Comtesse, having spotted upper segments, and fine large truss, is an admirable flower. The group was nicely set off with small Palms and Pteris (Silver Banksian Medal).

Messrs. Paul & Son, The Old Nurseries, Cheshunt, showed in pots the coppery Austrian Briar, Soleil d'Or, Gruss au Teplitz, H.T.; Bourbon, Snowball, a very full flower, with the faintest shade of pink in it.

Messrs. R. Wallace & Co., Colchester, showed a number of alpine, rock, and other hardy plants. We remarked Iris pumila gracilis, several Sax fragas, Funkia Sieboldi variegata, Scilla campanulata var., Ixiolirion Pallasii, a flower of a light blue colour; Uvularia sessilifiora, with yellow drooping campanulate flowers, the plant making a nice effect when planted in the mass.

Mr. Richard Anker showed his usual exhibit of Cacti.

The Hardy Plant Co. Nursery, Keston, Kent (G. Reuthe), exhibited hardy rock plants in many species, including Ramondia pyrenaica, Anemone sylvestris, white; Artemisia pedemontana; varieties of Primula Sieboldi, Ajuga metallica crispa, Trillium grandiflorum var. roseum, Ourisia coccinea, Lewisia Tweedi, species of Saxifraga, Trillium, Primula, double flowered Auricula, yellow; Erodium pelargoniflorum, and Mertensia virginica (Bronze Banksian Medal).

The New Plant and Bulb Co., Guernsey, showed their new Intermediate Iris, in variety, in colours deep blue, yellow, cœrulean blue, white, white and yellow, &c. They are earlier bloomers than most that we have here.

Messrs. Balchin & Son, Hassocks, Sussex, exhibited Ericas in variety, including the beautiful E. propendens, Boronia megastigma, both finely bloomed; Diosma ericoides, Leschenaultia biloba major, Aphelexia humilis, and Genetyllis fuchsioides (Silver Banksian Medal).

Messrs. John Peed & Son, West Norwood, London, S.E., showed a collection of alpines and rock-plants in much variety, and mostly in healthy condition. We noted Primulas, Sedums, prostrate Phloxes, Iberis, Aubrietias, Funkia Sieboldi, Alyssum, Antennaria dioica, Fortune's Bamboo, &c.

Messrs. Cannell & Sons, Swanley, Kent, showed a great number of zonal Pelargoniums as bunches of cut bloom, very brilliant and pleasing, and in great variety, both double and single flowered (Silver Flora Medal).

Awards.

Acer palmatum linearilobum purpureum gracile Crippsii.—In spite of its egregious name, this is a pretty variety of A. p. purpureum with narrower leaves. Shown by Messrs. T. Cripps & Sons, Tunbridge Wells, Kent (Award of Merit).

Canna, Papa Crozy. — An excellent variety with Gladiolus-like flowers, having wide segments, and in colour bright cherry red. Shown by Sir Trevor Lawrence, Bart. (gr., Mr. W. Bain) (Award of Merit).

Kalanchoe × Felthamensis.—The brilliant flowered K. flammea which was so finely exhibited from Kew at the Hybrid Conference at Chiswick in 1899, has already been used by Messrs. James Veitch & Sons, Royal Exotic Nurseries, King's Road, Chelsea, as a species for crossing with K. Kirki. K. Kirki, though possessing a botanical interest, is not a good garden plant. Its habit is lax, the flower spikes very long and branching, and the flowers less brilliant than those of K. flammea. In the hybrid K. Felthamensis, the good qualities of both plants have been preserved in an extraordinary degree. The flowers are just as brilliant as those of K. flammea, but the plant produces more heads, and is much more graceful. The foliage too, is very ornamental, having a colour almost similar to that of Echeveria metallica. The largest leaves are 5 inches long and 2 inches across, the margins being notched as

Fig. 120.—Psoralea pinnata: flowers lilac and white.

in K. Kirki, but less regularly, not entire as in K. flammea. An important quality of the hybrid is obtained from K. Kirki, that of an easier and much quicker grower than K. flammea. The plants now shown by Messrs. VEITCH are scarcely a year old from seeds (First-class Certificate).

Psoralea pinnata.—This hard-wooded greenhouse Leguminous plant is a very old inhabitant indeed, having been introduced more than two centuries ago. It was figured in *Gardeners' Chronicle*, June 1, 1889, p. 693, and is now reproduced (see fig. 120, p. 301). The prevailing colour of the flowers is blue, but the wings are white. G. BULTEEL, Esq., Sefton Park, Slough (gr., Mr. E. Jennings), exhibited a standard with three stems nearly 5 feet high, and having an umbrella-shaped top, bearing numerous flowers (Award of Merit).

Anemone coronaria fl.-pl., var. "*King of Scarlets.*"—A flower of middle size with guard petals and a dense mass of inner petals; a beautiful flower.

Climbing Tea Rose Rambler.—A semi-double, floriferous variety with light, loose flowers, disposed in light bunches. Shown by Messrs. PAUL & SON, The Old Nurseries, Cheshunt.

Narcissus Committee.

Present: H. B. May, Esq. (chairman); and A. R. Goodwin, W. Poupart, R. Sydenham, G. H. Engleheart, P. R. Barr, J. de Graaff, Chas. T. Digby, Geo. Reuthe, Walter T. Ware, C. H. Curtis, Miss E. Willmott, W. Goldring, J. W. Kingsmill, James Walker, R. W. Wallace, J. T. Bennett-Poë, W. F. M. Copeland, and Chas. MacMichael.

Messrs. HOGG & ROBERTSON, Dublin, had many fine varieties, in which Cloncurry, a long red cup with Leedsii segments was distinct. The fine bicolor Grandee was good, as also Mrs. Camm. White Wing, a fine Leedsii, Countess Cadogan, and Mrs. Betteridge, both White Ajax kinds, to which also Countess Mayo belongs. Mme. de Graaff too was fine. The firm was strong in good Tulips too, Batalini, Buenoventura, Didieri, Bouton d'Or, Goldflake, fulgens very rich and telling, Haggeri, and La Candeur, being most prominent (Silver Flora Medal).

An exhibit from Messrs. WALLACE & Co., Colchester, was rich in Tulips, and here we noted T. Ostrowskiana, T. Didieri, very showy; Miss Jekyll, a creamy-white, with distinct base; Gesneriana major, Kolpakowskiana, fine yellow kind; viridiflora præcox, the miniature T. Lownei, and T. Haggeri, together with many of Parrott and Darwin varieties; a capital free method of arranging was noted.

Messrs. R. W. BATH, Ltd., Wisbech, had many Tulips, and quite a lot of Narcissus. In the former, Queen of the Netherlands, soft rose; Prince of Austria, orange-scarlet; Pink Beauty, a strange name for a crimson or lake tone, and white in almost equal parts on the outer segments; it is a showy variety, however, despite its name. T. retroflexa, a fine yellow, was also notable, and with these such as elegans and many others were shown (Silver-gilt Banksian Medal).

Messrs. JAMES VEITCH & SONS, Ltd., Chelsea, exhibited Narcissus, amongst which we noted Leedsii Gem, Nelsoni major, N. aurantiacus, Minnie Hume, Mozart, orientalis, Mrs. Walter Ware, Madame De Graaff, in quite excellent form, and large numbers; King Edward VII, Grandee, Duchess of Westminster, Red-cup, a fine incomparabilis, and many others, for so late a time, were well shown (Silver Flora Medal).

Tulips of the bedding group, representative of numerous single and double varieties, also unbroken flowers in much variety, came from Messrs. W. BULL & SONS, Chelsea. We noted Belle Lisette, Helianthus, Bride of Haarlem, Rose Gris de Lin, and La Citadelle, all very pretty flowers (Silver Banksian Medal).

In the group from Messrs. BARR & SONS, Covent Garden, apart from a few of the choicest Narcissi, that included N. triandrus calathinus in large pans, with such as Maggie May, Gloria Mundi, Glory, a fine poeticus; Mme. de Graaff, splendid; Red Star, very fine; and others. The rich array of Darwin Tulips attracted much attention. These indeed were superb, and there was quite a large array of varieties from which we select a few. Clara Butt, pale salmon-rose; Cordelia, glowing crimson and violet; Flambeau, brilliant scarlet; J. Chamberlain, cherry-scarlet; May Queen, soft rose; Phyllis, heliotrope and white shading; Pride of Haarlem, brilliant rose-scarlet; Queen of Roses, Suzan, soft rose flesh; Salmon King, with the Sultan and Zulu as representing the darkest flowers (Silver-gilt Flora Medal).

AWARDS OF MERIT.

Narcissus Count Visconti.—This is perhaps the most valuable addition on this occasion, the flower a sort of Giant Queen of Spain, with almost the stature and not a little of the colour of Emperor. The shade is quite uniform, the cup long and cylindrical—a bold, impressive flower generally.

N. Countess Visconti.—This may be described as a bicolor form of the above, yet smaller, and of more refined appearance. We regard it as a high class flower, from which doubtless better things will come in the near future.

N. Occident.—A lemon-coloured incomparabilis, with a richly coloured cup, distinctly well set up on a narrow base, thus giving it a well-defined character. A shapely flower of considerable merit.

N. Valeria.—A giant poeticus variety, more widely winged than Cassandra, and therefore distinct. The blossoms are about 3½ inches across, if not more.

N. Astradente.—The great feature of this is the big flat corona, into the orange-red of which the finest crimping has been introduced. It is a Leedsii in all probability, the segments large and well formed, and the flower of fine stature. All of these were exhibited by Miss WILLMOTT, Warley Place, Essex.

N. Caroline Carver.—In this the segments of the perianth are white, and the crown of an intensely rich orange-scarlet, and of large size. Exhibited by Miss R. SPURRELL, Hanworth, Norfolk.

Tulip La Rive.—A bold and handsome bedding Tulip, with flowers of a rosy-buff tone with yellow base. From Messrs. WM. CUTBUSH & SONS, Highgate.

Tulipa Haggeri var. nitens.—A dwarf and showy species, with a rich inner colouring of orange-scarlet and a blackish centre. The plant generally is of small stature, and the colouring rich. Exhibited by Messrs. R. W. WALLACE & Co., Colchester.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (hon. sec.), F. Wellesley, W. A. Bilney, F. A. Rehder, J. Gurney Fowler, J. Colman, R. Brooman-White, H. M. Pollett, H. Ballantine, W. Cobb, W. Boxall, W. H. Young, W. H. White, H. A. Tracy, H. Little, H. T. Pitt, J. Charlesworth, A. A. McBean, F. W. Ashton, and M. Gleeson.

There was a fine display of Orchids, Odontoglossums especially being well represented.

Captain G. L. HOLFORD, Westonbirt (gr., Mr. Alexander), was awarded a Silver Flora Medal for a group rich in superbly grown Odontoglossums, the central specimen, a noble plant with six spikes, bearing together 129 flowers, securing for the grower a Cultural Commendation. Among the best of the O. crispum noted were O. c. Argus, O. c. Norah, and O. c. Iolanthe, all of the best type; other fine plants remarked were varieties of Lælio-Cattleya × G. S. Ball, L.-C. × Hyeana splendens, very fine in colour; Lælia × Latona, L. × cinnabarina, Cattleya Mendeli Duchess of York, a very fine Masdevallia Veitchiana grandiflora, a large and rich purple-tinted Cypripedium × Chapmani magnificum, Zygopetalum × Perrenoudi, &c.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), was awarded a Silver Flora Medal for a fine and interesting group, the central portion of which contained all the leading species and varieties of the Cypripedium bellatulum and C. niveum sections, including fine examples of the typical C. bellatulum, and its pure white variety album; C. Godefroyæ and its variety "leucocheilum"; C. concolor, C. niveum, and the unspotted C. n. Albion, &c. Also effective were an example of Lælio-Cattleya × Highburyensis, with two spikes, bearing together seventeen flowers; Miltonia vexillaria Chelseaensis, M. × Bleuana, a very fine Odontoglossum tripudians, Cymbidium tigrinum, the original plant from the Day collection; good Dendrobium infundibulum, Trichopilia suavis, Lælia purpurata "Ethel Grey," a charming white flower with a cherry-red labellum; fine spikes of Oncidium Marshallianum, &c.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), secured a Silver Flora Medal for an excellent group, in which were many rare plants. In the group were a number of fine Odontoglossums, a Cypripedium Masiersianum, C. × Euryades, the rare emerald-green and white C. Lawrenceanum Hyeanum, C. bellatulum, and others of that class; good Cattleya Mendeli, C. Schroderæ, including the handsome C. S. Heatonense; C. Schillerlana "Pitt's variety," with labellum almost wholly rich crimson-purple; C. Lawrenceana, Lælia purpurata "Novelty," L. × Latona, Oncidium Kramerianum, O. phymatochilum, O. macranthum, Cymbidium × eburneo-Lowianum, Miltonias, &c.

Messrs. JAS. VEITCH & SONS, Chelsea, were awarded a Silver Flora Medal for an effective group of fine varieties of Cattleya Schroderæ and other Cattleyas, including C. intermedia alba, a good selection of Lælia × Latona, Masdevallia Veitchiana, the pretty hybrid Epi Cattleya × radiato-Bowringiana, varieties of Epidendrum × O'Brienianum, Oncidium Marshallianum, hybrid Cypripediums, &c.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, were awarded a Silver Banksian Medal for a select group, in which there were several very promising spotted Odontoglossum crispum, O. × Adrianæ, remarkable for fine size and spotting; Lælio-Cattleya × Dora, L.-C. × Adolphus, and L.-C. × G. S. Ball, all of rich orange tint; the singular looking and pretty Epi-Lælia × Aspasia (L. cinnabarina × E. Cooperianum), Cypripedium × Vinletta (Chamberlainianum × nitens), and other good hybrids.

Messrs. SANDER & SONS, St. Albans, showed Sobralia × luminosa (Holfordi × Wilsoni) of a fine purple colour; S. mirabilis (Veitchi × macrantha alba), white, with lavender tint and greenish-yellow disc; Cypripedium Lawrenceanum excelsior, Lælia purpurata Duke of Marlborough, L. × purpurato-grandis, Phaius × Marthæ, Spathoglottis × aureo-Viellardii, Lælio-Cattleya × Bletchleyensis, &c.

Messrs. LINDEN, Moortebeeke, Brussels, showed Cypripedium × Gordoni (Chamberlainianum × œnanthum), a distinct hybrid with a whitish ground colour, the upper sepal and petals lined and spotted with purple, and the lip tinged with rose; C. × Gordoni inversum, similar in shape but having a yellow ground colour marked with chocolate; Odontoglossum luteo-purpureum sceptrum "Edward VII," of fine size and colour; O. l.-p. s. "Queen Alexandra," yellow, marked with red-brown; and Dendrobium nobile "President Loubet," a large flower blotched with purple.

DE BARRI CRAWSHAY, Esq., Rosefield, Sevenoaks (gr., Mr. Stables), again showed the magnificent Odontoglossum triumphans "Lionel Crawshay," which was illustrated in the *Gardeners' Chronicle*, on April 20, 1895. The plant was splendidly grown, and the flower increased in size. The Committee recommended a Silver-gilt Medal.

Captain J. C. STRINGER, Park Hill, Kenilworth (gr., Mr. Geo. Holland), showed a fine plant of Miltonia vexillaria, "Park Hill variety," one of the finest in size and colour which has yet appeared, the lip measuring 4 inches across. Colour, bright purplish-rose.

ROGER K. CROSS, Esq., Slinfold, Sussex, sent Cypripedium Godefroyæ leucocheilum.

J. RUTHERFORD, Esq., M.P. (gr., Mr. Lupton), showed Odontoglossum × Adriana Beardwoodiense, white, spotted with brown.

Messrs. B. S. WILLIAMS & SON, Holloway, showed Cypripedium × polito-Sallieri, a bold yellow flower, heavily marked with chocolate colour.

Messrs. HUGH LOW & Co., showed Odontoglossum × Wendlandianum, and O. Ruckerianum.

Awards.

AWARD OF MERIT.

Odontoglossum cirrosum Pitt's variety, from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood).—A remarkable and very large variety, with the segments longer and broader than in the type, and finely spotted with dark purple. The bases of the petals are very broad and finely marked.

Odontoglossum × *Queen Alexandra, Rutherford's variety*, from J. RUTHERFORD, Esq., M.P., Blackburn.—The parentage given is Harryanum × excellens, but the Committee on this occasion, as they did when a form of the plant was first shown at the last Temple Show, expressed the opinion that it was from O. Harryanum × triumphans. Sepals and petals yellow, marked with red-brown, much as in some forms of O. triumphans; the lip white, with a dark reddish-purple blotch at the base, and some smaller purplish markings.

BOTANICAL CERTIFICATE.

Megaclinium Imschootianum from H. T. PITT, Esq. (gr., Mr. Thurgood).—A very remarkable species with triangular pseudo-bulbs, and flower-spikes developed on the upper halves into broad, flat blades, down each side of which are single rows of curious, insect-like flowers of a yellowish hue, the acuminate tips of the petals being curved, and of a purple colour.

Fruit and Vegetable Committee.

Present: Jos. Cheal, Esq., in the Chair; and Messrs. Ed. Beckett, S. Mortimer, A. Dean, W. Pope, H. J. Wright, R. Lewis Castle, H. Markham, J. Jaques, F. Q. Lane, G. T. Miles, J. Willard, G. Norman, Jas. H. Veitch, A. H. Pearson, Owen Thomas, H. Eslings, and G. Reynolds.

Messrs. SUTTON & SONS, Reading, exhibited two baskets of excellent pods of their fine Pea Early Giant (Cultural Commendation).

Messrs. H. CANNELL & SONS, Swanley, Kent, exhibited growing plants of King Edward VII. Pea, which were sown in the second week of March. They were growing in boxes, and trained to a flat trellis. The plants bore an excellent crop of Peas. May Flower Broccoli was good, as were a number of Cannell's Defiance Cabbage (Silver Banksian Medal).

Six bunches of Lady Downes Grapes from Earl STANHOPE'S garden at Sevenoaks were very fine, and excellent Strawberries came with them (Silver Banksian Medal).

An interesting exhibit of three fruits of Cocoa (Theobroma cacao) were shown by Mr. JAS. EPPS, jun. They were cultivated at Norfolk House, Beulah Hill Upper Norwood, in a prepared border. The trees are eight years old, and were laden with blossoms last summer; precaution was taken to pollinate the flowers. The pods were upon the trees for about seven months, and a minimum temperature of 70° was maintained, with a humid atmosphere. The fruits were about 7 inches long, and appeared to represent different varieties (Silver Banksian Medal).

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period April 26 to May 2, 1903. Height above sea-level 24 feet.

1903. April 26 to May 2.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 26	S.S.E.	43·4	42·4	50·1	41·3	0·39	45·2	45·6	46·7	39·8
MON. 27	S.S.E.	49·4	48·6	57·2	42·8	0·08	45·9	45·9	46·7	33·0
TUES. 28	S.W.	51·2	47·5	59·4	44·2	0·45	47·1	46·3	46·7	30·3
WED. 29	S.W.	52·4	49·9	59·2	48·0	0·01	48·8	47·0	46·8	42·2
THU. 30	S.W.	52·4	49·2	57·2	47·1	0·17	49·8	47·9	47·0	37·2
FRI. 1	S.W.	50·2	48·8	53·9	46·9	0·08	50·1	48·2	47·0	36·5
SAT. 2	S.W.	53·2	49·5	57·8	44·5	0·16	50·0	48·5	47·2	33·2
						Tot				
MEANS	...	50·3	48·0	56·4	45·0	1·34	48·1	47·1	46·9	26·0

Remarks.—A week of dull, mild, showery weather.

THE WEATHER IN WEST HERTS.

A WEEK of growing weather. For although the ground temperatures were still rather low, the nights remained warm, and the atmosphere unusually humid. On the warmest day the temperature in the thermometer screen rose to 62°, which is the highest since March 25, when 66° were registered. On no night did the exposed thermometer show a lower reading than 35°. The ground is still about 1° colder than is seasonable at 2 feet deep, and only about an average temperature at 1 foot deep. Rain fell on each of the nine days ending the 3rd, to the total depth of 2½ inches. Although on no day during this very wet period did the measurement amount to more than about half an inch, more rain was deposited than in any consecutive nine days since February, 1900, or for over three years. Of the total quantity, which is equivalent to a watering on each square yard of surface in my garden of nearly 12 gallons, 8 gallons has already come through the 2½ feet of soil in the uncropped percolation gauge, and 6¼ gallons through that on which short grass is growing. The record of sunshine was small, being about two hours a day short of the average for the month. The 4th was a very calm day, but previous to this moderately high winds had, as a rule, prevailed. The amount of moisture in the air was singularly large for a spring month.

APRIL.

Taken as a whole, this was the coldest April known in this district for twelve years. As regards temperature, it was chiefly noteworthy for a fortnight of exceptionally cold weather in the middle of the month, when on five consecutive nights the exposed thermometer registered from 10° to 13° of frost. The lowest of these readings is the coldest April minimum since 1893. The distribution of the rainfall was remarkable. The total fall was 1·90 in., or exactly average, and of that amount all but half an inch was deposited during the last six days of the month. The sun shone on an average for 4½ hours a day, which is about half an hour a day short of the April average. The winds were, as a rule, rather high, but for only 139 hours altogether, or for about six days, was the direction any point between north and east. Throughout the cold fortnight the atmosphere remained dry, but during the rest of the month the humidity for the time of the year ruled high. *E. M., Great Berkhamstead.*

MARKETS.

COVENT GARDEN, May 7.

CUT FLOWERS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Azaleas, per doz. bunches	2 0	4 0
— mollis, per bunch	1 0	—
Bouvardias, per dozen bunches	6 0	8 0
Callas, per dozen	1 6	3 0
Carnations, per bunch	1 0	3 0
Daffodils, p. doz. bunches	1 0	4 0
Eucharis	2 0	3 0
Ferns, Asparagus, per bunch	1 0	2 6
— French, per doz. bunches	0 4	0 8
— Maidenhair, doz. bunches	4 0	6 0
Gardenias, p. box	1 6	3 0
Gladiolus, White, per bunch	1 0	1 6
— Blushing Bride, bunch	1 6	—
Gypsophila, per bunch	0 6	—
Iris, per bunch	0 9	1 6
Ixia, per dozen bunches	3 0	—
Liliums, White	2 0	4 0
— auratum, per bunch	3 0	4 0
— longiflorum, per bunch	2 6	4 0
Lilium lancifolium, bunch	2 6	3 0
Lily of the Valley, p. doz. bunches	4 0	9 0
Marguerites, yellow, per dozen bunches	2 0	2 6
Mignonette, doz.	2 6	3 0
Narcissus, dozen bunches	1 0	3 0
Orchids: Cattleya, dozen blooms	12 0	15 0
— Dendrobiums, per dozen	2 0	3 0
— Odontoglossums, dozen	2 0	4 0
Pelargoniums, zonal, dozen bunches	4 0	6 0
— White	3 0	6 0
Pinks, per dozen bunches	2 0	3 0
Roses, Mermet	2 0	3 6
— various, bun.	1 0	4 0
— red, p. bunch	1 0	3 0
— white, bunch	1 0	2 0
— pink, bunch	2 0	5 0
Smilax, per dozen trails	1 6	2 6
Stocks, per dozen bunches	2 0	4 0
Sweet Peas, per dozen bunches	4 0	6 0
Tulips, all colours, per bunch	0 6	1 0
Wallflowers, per dozen bunches	3 0	3 6

PLANTS IN POTS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Adiantums, doz.	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæs, doz.	9 0	18 0
Aspidistras, doz.	18 0	36 0
Aucubas, per doz.	4 0	8 0
Azaleas, each	2 0	4 0
Begonia Gloire de Lorraine	6 0	12 0
Callas, per dozen	4 0	8 0
Cinerarias, p. dz.	4 0	8 0
Coleus, per dozen	5 0	—
Crotons, per doz.	12 0	24 0
Cyclamens, p. doz.	8 0	18 0
Cytisus, per dozen	6 0	9 0
Dracænas, variety, dozen	12 0	48 0
Ericas, per dozen	8 0	18 0
Euonymus, vars., per dozen	4 0	8 0
Ferns in variety, per dozen	4 0	30 0
— Japanese Balls, each	1 6	—
Ficus elastica, doz.	9 0	24 0
Fuchsias, per dozen	6 0	8 0
Hydrangeas, doz.	8 0	24 0
Herbaceous Perennial Plants in variety, per box	1 0	2 0
Ivy Pelargoniums, dozen	6 0	8 0
Lilium longiflorum, per doz.	12 0	21 0
Lilac, pots, each	2 0	3 6
Lily of the Valley, pots	8 0	10 0
Lycopodiums, dz.	4 0	5 0
Marguerites, doz.	8 0	12 0
Mignonette, doz.	6 0	8 0
Orange-trees, each	3 0	7 6
Palms, var., each	3 0	20 0
Pelargoniums, — Oak-leaf, scented, doz.	4 0	—
pink, per doz.	4 0	8 0
— scarlet, dozen	4 0	6 0
— show, dozen	8 0	12 0
— white, p. dozen	4 0	—
Petunias, p. doz.	4 0	8 0
Pteris tremula, dz.	4 0	8 0
— Wimsetti, doz.	4 0	8 0
Rose Trees, p. dz.	9 0	18 0
Spiræas, per doz.	4 0	8 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, Australian, including Tasmanian, per case	8 0	13 0
Bananas, bunch	7 0	12 0
— loose, dozen	1 0	1 6
Cherries, per box	1 3	2 0
Figs, per dozen	4 0	9 0
Grapes, Gros Maroc, lb.	5 0	—
— Hamburgh, A., per lb.	3 0	4 0
— — B., per lb.	2 0	2 6
— Almeria, per dozen lb.	6 0	10 0
— Muscats, A., per lb.	8 0	10 0
— — B., per lb.	4 0	6 0
Gooseberries, per peck	7 0	—
Lemons, per case	8 0	10 0
Lychees, packet	1 0	—
Melons, each	2 0	3 0
Nectarines, A., per dozen	18 0	24 0
— B., per doz.	4 0	8 0
Oranges, per case	14 0	18 0
— Tangierines, per 100	4 0	—
Peaches, A., per dozen	15 0	30 0
— B., per dozen	5 0	10 0
Pines, each	2 0	4 0
Strawberries, A., per lb.	3 0	4 0
— B., per lb.	1 0	2 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen	1 0	2 0
— Jerusalem, p. sieve	0 9	1 0
Asparagus, sprue, per bundle	0 6	0 8
— French	0 6	2 6
— English, per bundle	1 6	4 0
Beans, dwarf, lb.	0 9	1 0
— broad, per flat	5 0	—
— Channel Is. lb.	0 9	0 10
Beetroots, per bushel	1 0	—
Cabbages, per bag	1 0	1 6
— per tally	2 0	3 0
Carrots, dozen bunches	1 6	2 0
— bag (washed)	2 6	3 0
— new, doz.	4 0	5 0
Cauliflowers, doz.	1 6	1 9
Celery, per dozen bundles	6 0	—
Cress, per dozen punnets	1 3	—
Cucumbers, doz.	2 0	3 6
Endive, per doz.	1 0	1 3
Garlic, per lb.	0 4	—
Horseradish, foreign, p. bunch	1 3	1 8
Leeks, per dozen bunches	0 9	1 0
Lettuces, Cabbage, per dozen	0 8	1 3
Lettuce, Cos, doz.	3 0	4 0
Mint, dozen bun.	2 0	3 0
Mushrooms, house, per lb.	1 0	—
Onions, per bag	7 0	—
— foreign, case	7 6	—
— green, p. doz.	2 0	3 0
— picklers, sieve	3 0	3 6
Parsley, per doz. bunches	1 0	1 6
— sieve	0 9	1 0
Parsnips, per bag	1 0	1 6
Peas, per flat	4 0	5 0
— frame, per lb.	0 9	0 10
Potatos, per ton	120 0	150 0
— New Teneriffe, per cwt.	12 0	16 0
— New, Kidney, Frame, p. lb.	0 2½	0 3
Radishes, per dozen bunches	0 4	1 0
Rhubarb, Yorks.	1 6	—
— outdoor	2 0	3 0
Salad, small, punnets, per doz.	1 3	—
Seakale, natural, doz. punnets	21 0	—
Spinach, p. bushel	1 0	2 0
Tomatos, Canary, deeps	3 0	4 6
— Channel Islands, per lb.	0 9	—
— English, new, per 12 lb.	8 0	10 0
Turnips, p. dozen	1 6	2 0
— bags	1 6	2 0
— new, bunch	0 4	0 8
Vegetable - Marrows, per dozen	4 0	8 0
Watercress, per dozen bunches	0 4	0 6

REMARKS.—Tasmanian Pears fetch, per case, 3*s.* to 6*s.* Broccoli Sprouts are nearly over. Brnecoli is lower in price. Potatos, in variety, from Scilly, at 2*d.* lb.; St. Malo, 2½*d.*; Jersey, 2½*d.*; Lisbon, per box, 7*s.*; Teneriffe, per cwt., 12*s.* to 16*s.*; framed, per lb., 2½*d.* to 3*d.* Rhubarb is improved in price.

POTATOS.

Various samples, 120*s.* to 140*s.* per ton; Dunbars, red soil, 140*s.* to 150*s. John Bath, 32 & 34, Wellington Street, Covent Garden.*

ENQUIRY.

VIOLETS.—Will some gardener who has successfully eradicated the "Violet-leaf spot," so prevalent in late years on Marie Louise and other varieties of double-flowering Violets, kindly give his experience in respect to the best preventive to *Marie Louise?*

TRADE NOTICE.

MR. ALFRED CHANDLER, F.R.Met.Soc., for reasons of health, resigns his position in June as the Secretary and Cashier of the Devon Rosary and Fruit Farm, Ltd., Torquay, after twenty-two years' service in that capacity, and is leaving for a voyage to South Africa. He will, however, retain his position of a Director of the Devon Rosary Co., which he has held for the same long period.

ANSWERS TO CORRESPONDENTS.

ACACIA JULIBRISSIN: *E. R.* The correct name for this species is "Albizzia Julibrissin," and it is called on the continent "Arbre de soie" and "Acacia de Constantinople." You will find it described in Nicholson's *Dictionary of Gardening*, under the first name given.

BIRDS AND APPLE BLOSSOMS: *Sufferer.* There is no other means besides covering the trees with close-meshed nets.

BOTANICAL BOOKS: *H. J.* If you will specify what your requirements are, we may be able to help you, but we cannot undertake to reply by "return of post."

CARNATION: *J. H. A.* The leaves show the fungus Helminthosporium echinulatum, but not in a fully developed condition.

CUCUMBER FOR EDITOR'S EXAMINATION: *H. H.* We can find no trace of it. Kindly send another.

CUCUMBER: *Experientia docet.* It may be caused by cold, or by eelworms, or by fungus at the root, we are unable to say which without more material.—*D. G.* The plant has been checked in growth from some cause unknown to us.

CUCUMBERS GOING SOFT IN THE MIDDLE: *D. G., York.* In this case it is of no use to send merely a fruit, we must have specimens of

roots, leaves, and shoots, besides some of the soil of which the bothed consists, before we can tell you the cause of the malady.

DENDROBIUM-LEAVES: *G. W.* Insufficient light and air is probably the cause of the decay of the Dendrobium-leaves.

EMBOTHRIUM COCCINEUM: *E. R.* We have no experience of raising this plant from seeds, but providing the seeds are well ripened we should anticipate no difficulty in raising the plant by that method. The damping off would depend upon treatment, and the species being almost hardy in this country. Greenhouse treatment would be the most suitable at the first cuttings of half-ripened wood. Strike in peaty soil and sand, under a bell glass.

GARDEN STAFF FOR EIGHT ACRES: *Young Gardener.* Without seeing the garden it is impossible to estimate the amount of manual labour required. If the men are employed wherever there is work to be done, and not any labour is required in the mansion in pumping water, wheeling coals in and coal-ashes out, attending to cows, poultry, horses or dogs, and if the mowing-machine is used, and not much labour expended in carrying water, six good men should suffice.

GRAPES: *R. A. H.* The "spot" disease—very infectious among Grapes. Remove every diseased berry, and burn them forthwith, then syringe the foliage and bunches with sulphide of potassium, ½ oz. in a gallon of water, once or twice.

GRASS VERGE CUTTER: *R. W. R.* There is a revolving cutter obtainable of the horticultural sundriesmen, which is less tedious in the working than the longhanded shears.

HYACINTHS AND EARLY TULIPS: *G. P.* If planted at a depth of 9 inches, and left in the ground, these bulbs produce, in the case of Hyacintha, a quantity of small flower-spikes; and in the second or third year the Tulip-brood or offsets throw flowers together with the parent bulb, but the display of bloom is poor. It is better practice to remove the whole when, in the case of the Tulips, the leaves are ripe—that is, when the flower-shaft has become tough enough to wind round the finger without breaking; and in that of the Hyacinths, in early June. The former may be dug up and dried in the sun, the offsets cleared off, and stored till September, when they may be planted in close lines in the reserve garden, to grow to flowering size. The mother-bulbs should be stored in drawers or brown-paper bags, planting them for display in the wild garden or mixed border. The Hyacinth-bulbs may be similarly treated, and the offsets either planted in small groups or thrown away. Once a Hyacinth has produced a good bloom, it is of no further value for planting in the spring flower garden.

INSECT: *W. W.* Lace-fly, not uncommon.

MOSS ON SOIL OF SEED-POTS AND BOXES: *E. R.* The soil may contain large quantities of the spores of some common moss, and probably the surroundings, dampness, &c., favour their germination. The nuisance would be abated if you would use soil that has been baked (not charred) over an iron plate in the open air.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*C. J. P.* 1, Leucothoe axillaris; 2, Leiophyllum buxifolium; 3, Vaccinium ovatum; 4, Leucothoe racemosa; 5, Arctostaphylos Uva-ursi, long, thin, leafy shoots; 6, Cassandra calyculata, shorter, branching shoots.—*J. B. B.* 1, Matricaria inodora; 2, Ribes aureum; 3, Genista decumbens; 4, Orchid; 5, Acæna sp.; 6, Rubus spectabilis.—*R. G. L.* 1, Peperomia arifolia; 2, Maranta Makoyana; 3, Croton (Codiæum)—we are unable to name varieties of this plant; 5, Dracæna Goldieana; 6, Nidularium sps., send flowers.—*D. G.* Ulmus montana.—*J. B. B.* Oncidium sphacelatum.—*S. B.* 1, Pholidota obovata; 2, Bulbophyllum Careyanum; 3, Dendrobium infundibulum; 4, Dendrobium chrysotoxum; 5, Dendrobium aggregatum; 6, Pholidota imbricata.—*G. C.* Both varieties of Odontoglossum Halli, the larger an exceptionally fine one.—*E. W.* 1, Polygala myrtifolia; 2, Cytisus hirsutus; 3, Euonymus radicans var. microphyllus; 4, send in flower; 5, Spiræa discolor; 6, Atriplex halimus.—*J. M.* 1, Cyrtomium falcatum; 2, Pteris longifolia; 3, Polystichum angulare; 4, Asplenium marinum; 5, Coprosma Baueriana variegata; 6, Phlox subulata.—*H. G. K.* 1, Cypripedium exul; 2, Odontoglossum Halli; 3, Saccolabium ampullaceum; 4, Colutea arborescens; 5, Helleborus viridis. The Narcissus is of the N. cernuus section, but we cannot undertake to name varieties. The seedling Begonia is near to B. coralliua in the flower, and we do not think it could be derived from the cross you name.—*T. M.* 1, Cypripedium barbatum; 2, C. villosum.—*Artist.* 1, Cypripedium Argus; 2, C. Boxalli; 3, Vanda tricolor; 4, Anguloa uniflora; 5, Stanhopea oculata; 6, Colax jugosus.—*W. B. C.* 1, probably an Abutilon, but we cannot tell from the leaves only; 2, Gloxinia, leaves are attacked with the mite, spray with tobacco-water; 3, Lavandula dentata.*J. T.* We cannot undertake to name florists' varieties of the Tulip.—*Enquirer.* Species of Erythronium, which we cannot name.—*R. Godwin.* We are unable to name without flowers.

NOTICE TO LEAVE SITUATION: *J. P.* See reply in our last issue, p. 288.

PEACH: *T. R.* The silver-leaf disease, said to be due to a fungus (Stereum). Cut away the diseased branches, and treat the trees liberally, and they may possibly outgrow it, but it is very doubtful if they will.

PEACHES NOT SWELLING: *Peach.* Some such check as that you suggest has doubtless occurred. The other fruit seems to be growing in a satisfactory manner.

PEARS: *G. H. M.* A mite (Phytoptus) has attacked the leaves. Try syringing with tobacco-water.

PLANTING DAHLIA TUBERS: *Ellis Fitzjohn.* The statement of our correspondent, "R. P. B.," on p. 219, seems to us to be readily comprehended. He advises the crown of the mass of tubers to be so divided as to leave one or two buds on each bit, i.e., that is, tubers or tuber, as the case may be. The actual tuber of the Dahlia does not possess lateral buds like the Potato, and it would consequently be of no use to plant such tubers without buds, dormant or growing.

PURPLE TOPPED SWEDE: *T. L.* The Swede is attacked by a bacterial disease, which is fully described in *Proceedings of the Royal Society*, 1901. No cure is at present known, but it is important that diseased Turnips should not be left on the land, nor allowed to mix with manure, otherwise the disease will be spread. *G. M.*

ROSE: *F. Atkinson.* Send to a Rose specialist, as we cannot undertake to name varieties of the Rose.

SITUATION IN A BOTANIC GARDEN: *R. B.* In addition to Kew, which is excepted, there are good gardens at Cambridge, Manchester, Royal Botanic, London, and Edinburgh; and there are two in Dublin, Glasnevin, and that belonging to Trinity College. In order to obtain a situation, you must make a written application to the Curator or Director, giving your experience in gardens, acquirements, age, nationality, and sending copies of testimonials.

STRAWBERRIES DISEASED: *J. I.* The fruits are attacked by mildew, and you should remove all affected berries and burn them forthwith. Let all the plants if in pots be syringed with liver-of-sulphur (sulphide of potassium), ½ oz. to 1 gallon of water, or the Bordeaux Mixture, before they come into flower.

SULPHIDE OF POTASSIUM: *J. T. B.* That which the chemist has sold you is not the right article, and we know nothing of its use as against fungus. Liver-of-sulphur is the vernacular name of the sulphide.

SUNFLOWERS: *W. T.* Probably the commercial oil refiners would be glad to take the seeds; and dyers or makers of dyes the petals of the flower. We do not think that in this country, where fuel and fodder are not scarce, a market could be found for the leaves and stems.

SWEET PEAS: *A. F. T.* The plants have a bad constitution; there is no fungus or eelworm.

THE SECRETARIES OF THE LINNEAN SOCIETY, &c.: *W. B.* The Secretaries are B. Daydon Jackson, Esq., and Prof. G. B. Howes, LL.D., and F.R.S. The Society meets in its rooms at Burlington House, Piccadilly, W.

TIGRIDIA SEED: *G. M. Soames.* You might enquire of Mr. Thompson, Ipswich.

TINY DARK-COLOURED CATERPILLAR INJURIOUS TO GOOSEBERRIES AND CURRANTS: *S. W. F.* Please send specimens of caterpillars and shoots of both kinds of bushes.

TOMATO-LEAVES DISEASED: *G. P. B.* Material insufficient; send again in larger quantity.

TOMATOS: *R. A. B.* Probably fungus; but the plant was so shrivelled and smashed that it was impossible to say for certain what was the matter. Such things should be packed in a tin or wooden box, so as to come through the post safely.

TRAVELLING EXPENSES: *A. J.* You cannot claim them.

TREE PÆONIES TO GRAFT: *A. W. W.* The tree species are grafted in late summer and early autumn with ripe current year's scions, free from flower-buds, by the cleft or whip methods, and is usually performed on a piece of a Pæony-root; and the scion is bound in with wire or wax-thread, grafting-wax not being used, as the scion is buried to the upper bud. The grafted roots should be kept in a cold frame or the greenhouse, protected from frost. The stocks may consist of P. officinalis, P. moutan, and P. albiflora.

TULIPS NOT GROWING PROPERLY: *H. M.* The bulbs were badly ripened last season, and fungus has attacked the decaying skin of the bulbs. The complaint is common this year.

TWELVE BEDDING PELARGONIUMS: *Norfolk.* King Edward VII., new, a sport from H. Jacoby; Paul Crampel, bright scarlet; Geo. Potter, bright crimson; H. Jacoby, crimson; John Gibbons, orange-scarlet; Vesuvius; Triomphe de Stella, orange-scarlet; Mrs. Robert Cannell, dwarf, salmon-red; Lucy Mason and Mrs. Holford, deep salmon; Beckwith's Pink, and Mrs. Turner, also pink; Hermione, white.

VINES DISEASED: *C. E. H.* The Vines are attacked by a fungus called Botrytis, which is of common occurrence, and proves very destructive unless checked. The origin of the disease is mainly due to excess of moisture, and lack of morning ventilation. Spray thoroughly every third day with a solution of potassium sulphide, ½ an oz. to the gallon of water. *G. M.*

VINE LEAVES ROUGH AND WARTY: *J. Meagre.* Want of balance between ventilation and aërial moisture. Afford more air, beginning early in the day so to do, even if more artificial heat has to be used for a time.

WATER TO SUPPLY FOUR GLASSHOUSES, EACH 100 FEET BY 20 FEET: *C. B.* There being 4 acres of water, if you can obtain a ram and a slight fall thereto with outlet for the water used in driving the ram, you could raise sufficient water per hour 20 feet, but there must be a storage tank capable of holding several thousand gallons, into which water could be pumped during the night. The ram should be placed in a brick-lined sunken chamber furnished with a trap-door. Failing a ram, some kind of pump worked by a pony might be made use of.

WIRING A WALL IN A GLASSHOUSE FOR CARRYING CLIMBING PLANTS: *Y. J.* As not many lengths of wire are to be used, it would be as well to have them of good strength—say the thickness of a crow-quill; and as a preventative of sagging, to fix them by means of eyed studs of cast-iron, in perpendicular fashion. If of iron (not galvanised) the wire will last a score of years if afforded occasionally a coat of anti-corrosion paint.

COMMUNICATIONS RECEIVED—C. E. E.—W. D.—C. T. D. A. K. B.—J. L.—Adnitt & Naunton—W. B. L.—A. R. G. L. Pardé—E. B.—W. S.—C. W. D.—D. T. G. V.—T. A. S.—W. W.—C. A. Y., Dulwich—J. Mayne—W. L. M.—Sir W. T. T. D.—F. W. B.—C. P.—J. L.—T. L. B.—D. Muir.—T. A. S.—R. Dean.—S. C.—D. R. W.—J. O'B.—G. B. M.—G. G.—C. W. D.—H. W. W.—D. B., Queensland.—T. Coomber.—J. Godber.—Subscriber.—P. E.—A. C. C.—A. C.—E. G. S.—Answer.—A. D. W.—E. M. W.—Geo. W.

Rehmannia angulata, New Greenhouse Perennial from China: Flowers Purplish.

Bradbury, Agnew & Co., Ld., Printers, London and Tonbridge.

THE
Gardeners' Chronicle

No. 855.—SATURDAY, MAY 16, 1903.

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WILLOWS.

MERELY to register the chief vernacular names by which the Willow is known conjures up a wide field for discussion. Withy, Sallow, Palm, Osier, Willow itself, names each very old, and some sufficiently difficult to unravel. "Wilw" appears among the trees in *The Knight's Tale*, and this we may conclude was Salix alba, the common Willow-tree. In Scotland it is best known as Saugh, a name distinguished by its antiquity, and at the present day remarkable as a word that the mere Englishman finds it impossible to pronounce in its entirety. It is Shakespeare's Willow "that shows his hoar leaves in the glassy stream;" and to appreciate the part it plays in our landscape we have only to picture our brooks and burns ascant which no Willow extends its flickering shadow. In the past it contributed very largely to the comfort of the rural Englishman, who constructed his simple furniture from its wood, his trenchers, trays, cans, beetles, ladders, ploughs, bee-hives, clogs, &c.; and when properly prepared, nothing approached it as fuel. Leather was tanned with the bark; and, on account of the refreshing coolness its foliage was believed to impart in even the hottest days of summer, it was a common practice to place branches of the tree in living apartments; while, for the same reason, physicians welcomed its introduction to the bedrooms of fever-stricken patients; or, as Evelyn has it, branches were "placed about their beds as a comfortable Refrigerium." It was also thought to possess qualities of the same nature as those ascribed to Vitex Agnus Castus, and not improbably it was on that account that a Willow-wand was presented to a jilted lover; possibly, indeed, may have been used as a substitute. At any rate, he, instead of—

> "Scarfes of red and yellow
> Turned to branches of green Willow."

And at least one old ballad testifies to the practice of hanging a garland of Willow above the grave of a swain who died a broken-hearted lover. It is a curious fact, and one perhaps not generally known, that the custom of placing wreaths of Willow on graves still exists in the north of Scotland; but I am unaware of any reason for doing so other than its being traditional. Gay, who twice refers to the custom of fencing graves with wicker, has been cited as an authority, but the reason he gives—

> "Lest her new grave the parson's cattle raze,
> For both his horse and cow the churchyard graze;"

marks the practice he refers to as having being devoid of sentiment. Not so long ago it was still customary to protect flower-borders in cottage gardens by a neatly intertwined fence of Willows. Though not exhausting the list of the Willow's accomplishments, it may be closed by noting the great liking all the early florists express for a compost in which the fine mould found in decayed Willow-trees formed a part, though they did not despise the rotted remains of other trees when those of the Willow could not be obtained.

The name, of course, has a considerably wider application than that just given, being frequently interchangeable with Withe and Withy, and in other ways used to indicate more than the tree of that name. Withy, however, possesses a more definite meaning, most generally referring to the use of twigs for tying purposes, and sometimes not applicable to the Willow at all. Mortimer, for instance, among the uses of Birch, mentions "Wythes for faggots;" and a "Wyth brusse" of Henry the Eighth's day was a Birch-broom. Fishermen in the north of Scotland still apply the name to the Osier; while Fitzherbert in *The Book of Husbandry* includes all sections—"Whyte Wethye, Blacke Wethy, Reed Wethy, and Osyerde Wethy." The Ettrick shepherd, in one of his stories, compares one of his characters—a girl—to a "tow withy-saugh;" and it was Evelyn who first employed withy to distinguish a species, the one more particularly in his mind seems to have been Salix rubra, L. Sallow, too, though less obviously interchangeable, was not by any means confined to one species or group. And here it may be said that few tribes of plants have exercised the critical faculties of botanists to a greater extent than has the Salix. Still, interesting as it is to trace its progress through the pages of Ray, Walker, and Smith, the lengthy array of species in Macgillivray's Withering, till we overtake Bentham and his fifteen native kinds, it is not always clear what the early writers meant by the varieties they mention. Turner, for example, makes the Sallow and the Willow the same species, Salix alba, and for a very long period it would be difficult to say exactly what the Sallow represented. Now, however, we accept Salix caprea, with its handsome flowering shoots, as the true Sallow, a species in some respects even more valuable, and certainly possessed of more interest than the larger-growing Willow-tree. "Who that buldeth his hous of Salwes," is part of an "olde sawe" quoted by the wife of Bath; while, as indicating the tenacity with which old-established methods cling to life, the employment of Sallows in house building continued till a comparatively late period in the extreme North, where they were called "Watlings," and "watle-and-daub" was the graphic designation applied to the partitions in dwelling-houses composed of Sallows daubed over with a composition of clay and water.

Space forbids enlarging on the many purposes to which the Sallow was put. As charcoal, or "withy coal," it has an unbroken record of many centuries as being superior to all other materials for tracing. Furniture of the best quality was made from the wood, which is as dark as mahogany and beautifully marked, and for this reason its common name was Red Saugh. Butlers of bygone days cleaned cutlery on its smoothened surface, and beyond any other material it was appreciated by the cork-cutter and shoemaker for whetting their cutting instruments.

At the present day the Sallow is rapidly regaining its lost popularity in connection with the position it holds in Easter celebrations; but it is noteworthy that the custom of "Palm" bearing seems to have continued without interruption among children on the Borders, Easter Monday having been a recognised holiday, when every child had its "pace" egg to "row" (or roll) in the village haugh, or meadow; and here and there, combined with that, gathering Palms was another feature of the day. The practice is mentioned in Dr. Johnston's *Flora of Berwick-on-Tweed* (1829-31), a work that, with the more mature one on the *Natural History of the Borders*, is annually becoming more valuable as a book of reference. The subject of "Palms," it may be noted, is fully treated in the *Gardeners' Chronicle*, 1875, to which those interested in the subject are referred. Maundrell, who visited the River Jordan at Easter, 1697, in company with 2000 pilgrims, tells how the latter busied themselves bathing, or in cutting branches from the trees on the river-bank, "to take as a memorial of this famous stream." Tamarisk, Willow, and Oleander are mentioned by the narrator as the trees. This seems to elucidate the calling of the ancient palmer, who is supposed to have been a pilgrim who brought home from the holy places he had visited a sample of vegetation as a proof of his *bona fides;* and in this connection there is still a tradition extant of a Scottish ecclesiastic when on a pilgrimage to the Holy Land having plaited for himself a "wand" on the banks of the Jordan.

Of the word Osier, I can discover no attempt at indicating its meaning. "Viminalis," remarks Turner, "is an Osyer-tree

suche as bryngeth furth roddes that baskettes are made of." It appears to be pure French, the "bone-tree," and as combining Turner's description with its hardness, we find such suggestive names as "Stone Rod" and "Horn Rod," applied to Salix viminalis. Osier, however, has long ago lost its original meaning, and other species and varieties possessed of none of these qualities, but eminently pliable and suitable for basket-making, are called Osiers. Though he does not name any particular species, Dr. Walker in his *Salictetum* mentions how he had ridden a horse in the Highlands, having as a bridle one made of Willow; and on another occasion how he rode at anchor all night in a boat, the cable of which was composed of curiously twisted Willows. The same authority avers that the Osier chiefly planted in Scotland was the female form of Salix viminalis derived from Holland, in which country, on account of the longer shoots it produced, it was cultivated to the exclusion of the male variety. The two-year-old rods were used as hoops for barrels, and for this purpose alone there was so great a demand that quantities were annually imported from the Netherlands. A Mr. Sherriff in East Lothian first attempted the cultivation of the Osier almost exactly a century ago, and the many references one finds in books of the period testify to a remarkable success. But Willow cultivation does not seem to have ever progressed much beyond the old-fashioned practice of planting the banks of ponds and streams, whence a supply to meet the ordinary requirements of "creel" making and bark for tying purposes was derived.

FIG. 121.—COFFEA LAURENTII (ROBUSTA).

Two Willow-trees possessed a more than usual interest to Englishmen throughout part of the eighteenth century, and an extraordinary amount of romantic history, unsupported by evidence, has gathered round them. The oldest and best known of these was Pope's Willow, which flourished till about a hundred years ago in his garden at Twickenham. Having examined the several accounts of the origin of this tree, there does not appear to be any satisfactory evidence existing as to how it was planted. It was certainly by several years not the first specimen of Salix babylonica planted in England as claimed for it. Some years ago I secured a cutting from an American paper to the effect that all the trees of this species cultivated in America were derived from a bundle of cuttings someone had imported, taken from Pope's tree; and only the other day I saw it gravely stated that, from one sole cutting, all these trees had been propagated. Such is history! A contemporary account in the *St. James' Chronicle* for August 25, 1801, tells of its destruction. The other tree was a specimen of Salix Russelliana, associated with the name of Dr. Johnson. Varying accounts state that it was planted by the lexicographer's father, by himself, that he visited Lichfield purposely to see it, or that he was accustomed to walk out of the town and seat himself under its shade. Good contemporary accounts with engravings are to be found in *The Gentleman's Magazine*, vol. 55, 1785. One view shows the tree in close proximity to a turnstile on a path which passed obliquely close to it, and the general impression one gains is that Dr. Johnson was attracted by the handsome appearance of this, one of many in a row, while walking along this footpath. Measurements are also given as made by one gentleman, and though the trunk was less than 13 feet in length to the lower branches, I have found measurements that had increased that by 7 feet; and in the same way with the girth, which had been increased to the same extent. *R. P. Brotherston.*

COFFEA LAURENTII (ROBUSTA).

HORT. KEW.

OUR illustration, fig. 121, shows a plant of a new species of Coffee growing in the Botanic Garden at Entebbe, in Uganda. The plant was received from Kew in 1901 as a seedling, and has now attained a height of 5 feet. The shining green leaves and the clusters of white flowers show that the plant is very ornamental, but probably this is the least valuable of its qualities, as it is hoped that its robust habit will give it immunity from fungous and other pests which have so seriously interfered with the cultivation of Coffee in Ceylon and other countries. Our illustration is drawn from a photograph taken in January last by J. F. Cunningham, Esq., Secretary to the Uganda Administration. The botanic station at Uganda is under the direction of Mr. Mahon, an old Kewite.

NEW OR NOTEWORTHY PLANTS.

RIBES PINETORUM, GREENE.*

FROM Mr. Henkel, of Darmstadt, we lately received specimens of this Gooseberry, which is a native of Arizona. The fruits are said to be very sweet, so that by hybridisation or otherwise we may anticipate some novelty in the way of Gooseberries. We append a description of the specimens sent.

* *Ribes pinetorum*, Greene, in *Botanical Gazette*, v. (1880), 157. Branches slightly puberulous, prickly, prickles in pairs, spreading, about 1 cent. long, curved; leaves on spurs, about 3 cent. across, puberulous, glabrescent, cordate, rounded, palmately 7-lobed, lobes oblong, crenate; leaf-stalk half the length of the blade, with several long setæ at the base; raceme from the centre of the leaf spur 15 mill. long, two-flowered; ovary covered with long, coarse, spreading setæ, intermixed with shorter glandular hairs; flower about 12 mill. long, tube cylindric, setose; sepals oblong, reflexed, nearly as long as the tube; petals as long as the sepals, oblong, erect, pinkish below, yellowish above, issuing with the stamens from the mouth of the flower-tube.

Eriostemon affinis, *Sprague, sp. nov.**

This new Eriostemon has been cultivated at Kew for some considerable time under the name of E. linearifolius, DC., and agrees well with the rather meagre description of that species in De Candolle's *Prodromus*. Through the kindness of M. Casimir de Candolle, however, the Kew plant was compared with the type of E. linearifolius, with the result that Bentham's reduction of the latter species to the genus Geijera was confirmed, and the Kew plant was recognised as a new species of Eriostemon.

Eriostemon affinis is at present in flower in the Temperate-house and Greenhouse at Kew, where it is one of the prettiest Australian Rutaceæ under cultivation. It is closely allied in floral structure to E. myoporoides, but differs markedly in habit; this is partly owing to the leaves being grouped towards the ends of the branches in E. affinis, while they are more persistent in E. myoporoides. The principal differential characters lie in the more linear leaves, which are concave above, with slightly incurved margins, the smaller flowers, and the ovary, which is more narrowed above the loculi, and rather shortly beaked. *T. A. Sprague.*

* *Eriostemon affinis*, Sprague, sp. nov.—Frutex 1—2 pedalis, ramis glabriusculis, nitidulis, ut folia dense verrucosis. Folia sessilia, lincaria vel lineari-lanceolata, 1—2 poll. longa, 1½—3 lin lata, basi attenuata apice cuspidata, supra concava, subtus convexa magis verrucosa, glabra, nervo medio subtus satis prominente Pedunculi axillares graciles, 2½—3½ lin. longi, 1—4 flori. Flores 5-meri, eis *E. myoporoidis* simillimi, sed tertia parte minores; petala alba glabra, 3½ lin. longa, 1½ lin lata; filamenta applanata, ciliata, apice subulata, majora 1½ lin. longa; antheræ apiculatæ, ¾ lin. longæ; ovarium supra loculos angustatum, lobis in rostros breves productis.

PRIMULA JAPONICA AT GLASNEVIN

This handsome Japanese species of Primula has a beautiful effect when massed in the pleasure grounds, selecting for this purpose a rather low, moist position, where the plants will be somewhat shaded from the sun. When growing in good, rich loam, the plants produce scapes 2 feet in height, and the whorls of crimson flowers are capable of lasting a considerable time. During the next few weeks, the species will be in bloom in most large gardens. Our illustration at fig. 122 (from a photograph kindly sent us by Mr. Varmar) shows how admirably the plant is cultivated in the Glasnevin Botanic Gardens, Dublin, where Mr. Moore succeeds in cultivating almost every plant he takes in hand. Being associated with Cypripedium spectabile and the Lady Fern, this handsome Primula could scarcely be more happily grouped.

A capital figure of the Primula japonica was published in the *Gardeners' Chronicle* for Sept. 23, 1871, p. 1225.

Fig. 122.—Primula japonica, associated with cypripedium spectabile and the lady fern.

HARDY CYPRIPEDIUMS.

The various hardy species of Cypripedium may be grown without artificial heat of any kind, but for their better cultivation require some special site and soil, and structure, the latter mainly as a wind or sun screen, rather than as a means of protection from cold. This fact should tempt many to undertake the cultivation of at least a few of them. In most genera of hardy Orchidaceæ it is necessary for the gardener to select rather than collect, but we have in the hardy Cypripedia a complete set of excellent garden plants that are perhaps somewhat difficult to grow well, but which are quite worthy of the trouble their cultivation involves. All are interesting on account of their structure, and most of them are neat plants, with flowers that may be described as of pleasing colouring and dainty shape. If open air cultivation be preferred, and this is by far the best method for the stronger-growing species, the site to choose for them should be cool and moist, with good drainage and shelter from drying winds; a hollow wherein rain-water could gather, depressions at the base of rockeries and other sheltered places suggest themselves; whilst associates that would help the Cypripediums by screening their roots from direct sunshine, and maintaining a fair balance of moisture below ground, would be found in many beautiful hardy Ferns, such as Woodsia, Woodwardia, Onoclea, Athyrium, and Adiantum pedatum, as well as several of the choicer British kinds that delight in cool places. The nature of the soil is not so important a factor as situation. A mixture of peat or leaf-soil and loam, with a fair amount of sand, especially around the crown, will suit all save C. calceolus, montanum, humile, and californicum; these prefer soil of a loamy nature, freely charged with sand, and they may be grown in places with a drier and warmer exposure than is good for the others. In very wet clayey soils they will need lifting above the general level, or protection from heavy rains, for their new roots and leading growths would perish if subjected to severe frost whilst very

wet; whereas the remainder of the group would find the conditions to their liking. Their successful establishment depends on the first year's treatment. Generally only imported roots are available wherewith to start the plantation, and these require greater care to establish than the tender species, having in the course of collection and transmission home lost all the feeding extremities of their roots; and as these are simple and seemingly incapable of branching, the plant makes growth and flowers from the slender store of reserve food in the fleshy roots and crown, without assistance from root-action. Obviously the plant is impoverished the first season, and it rarely recovers strength, the second crown being poor and ill-developed, and the necessity for a thick spread of roots below the new crown having vanished, they are not produced.

One would suggest as good practice, that back growths that have flowered should be removed entirely before planting, leaving the preceding year's roots alone attached to the new crown, and the decayed ends of these should be cut back to living tissue. Further, that the flowers of the first year's growth be removed entirely in an early stage, so that the plant's strength may be directed to the formation of a strong fresh lead, and the emission of roots from its base to support the flowering stem it contains in a nascent state. This will mean a year's growth without flowers, but it is better than a second year without plants, and necessary if they are to be established permanently. One would not think of allowing an imported tender Cypripedium to flower before the plant was established, and there is no material difference in the growth of the hardy species, save that, the plants being deciduous, and having a limited season of growth, the rule must be more strictly enforced. The species are mainly American.

*C. arietinum** (The Ram's Head Lady's Slipper). A slender-growing plant is, perhaps, the least useful from a gardener's point of view. It makes a tuft of leafy stems 6 inches high, bearing two to four flowers each, the sepals and petals of which are widely expanded, coloured brown, with yellow shading as in the native species, the lip being white with closely arranged rosy-pink veining. They average ¾ inch across the petals when fully expanded, and like most of their race vary in the degree of twisting shown, and the tint of colour.

C. calceolus.—The English "Lady's slipper," I believe, a doubtful native at the present time, should be made the nucleus of a collection, for if one succeeds in managing this plant well, the more costly species will prove all the more easy to grow. It is widely spread throughout the centre of Europe, growing generally in loam freely impregnated with limestone particles. One can, under ordinary circumstances grow the plant in any good loam and leaf-soil, mixed in equal quantities. The foot of rockeries suits the plant well so far as situation is concerned, but the site must be drier in winter than is normal, as stagnant moisture whilst the plant is resting destroys the root extremities. It throws up stems 1 to 2 feet high, clothed with ovate leaves, and bearing one to four fragrant flowers, with sepals and petals of a ruddy-brown tint, marked with yellow near the base, and often veined or tesselated throughout their length. The lip is an inflated, nearly spherical pouch, coloured clear yellow. The sepals and petals do not naturally twist or droop as in C. pubescens, but the margins are often undulating. The flowers span 2 to 3 inches across. Owners of estates overlying limestone should endeavour to re-establish this plant by means of seeds or plants.

C. californicum.—A rare species of great garden value, with leaf and stem growth resembling the native species, but stouter throughout, bears a dense spike of four to ten flowers, each 1½ in. across, a large foliaceous bract clasping the footstalk of each. The sepals and petals are coloured yellow, varying in tint from straw-yellow to golden, often showing brown tints above the ridge of hairs that occupies the base of each segment. The pouch-like lip is white, veined with rose, suffused with a rosy tint throughout in some specimens, or irregularly chequered, the plants varying much in colouring. It succeeds well planted out under conditions advised for C. calceolus, but in cold districts having a heavy winter rainfall it may require the protection of a frame or glazed light, as the plants seem peculiarly susceptible to decay at the junction of the crown with the root-stock. At all other seasons of the year its surroundings should be distinctly moist. Mr. Carl Purdy, of Ukiah, California, who probably knows more about the flora of the Western States of America than any other man, says: "Cypripedium californicum grows in dense masses at quite an altitude in boggy spots of north-western California and south-western Oregon. It does well almost in running water at my gardens." *George B. Mallett.*

(To be continued.)

* The descriptions of these Cypripediums are drawn up from cultivated specimens established in England, and the size of the flowers would probably be smaller in newly-imported plants.

TULIPS.

Mr. HARTLAND sends us from Cork a gathering of Tulips, the first three originally from Italy.

The Ard Cairn grounds are most picturesquely situated, and the soil is sandy loam—regular Tulip ground. There is a great number of varieties, so that we can only mention such as are meritorious from the commercial point of view, with lasting properties, particularly in colour and strength of petal.

Emerald Gem, with yellow flowers, deeply overlaid with rose, the base of the segments marked internally with a greenish blotch. The scent of the flower resembles that of Sweet Peas.

Neglecta picta yellow.—Canary-yellow, with a purplish-brown blotch at the base of the segments.

Neglecta picta brown.—In this the flowers are smaller, and the segments more pointed than in the yellow variety. The colour is yellow, flushed and streaked with crimson, with a deep purplish-brown blotch internally.

Illuminator is also labelled as if it were a form of neglecta picta, but it has much larger flowers; the segments yellow, deeply margined with rose; the basal blotch large, deep green.

It is, we fear, impossible to refer any of these, with certainty, to their original species. Mr. Baker arranges the species according as the bulb-scales are or are not hairy inside, and in the latter case according to the kind and degree of hairiness. It does not fall to the lot of many to be able to make a sufficiently exhaustive comparative study of the bulbs. The ordinary garden Tulips had already been so long cultivated by the Turks when they were introduced to Europe by BUSBEQUIUS in the middle of the sixteenth century, that their origin is at best conjectural; and we know that the native Tulips introduced by Mr. ELWES from Asia Minor differed so greatly in cultivation, that after a very few years the plants could hardly be recognised as descendants from the wild type.

Sunset.—Fiery red and gold, a great beauty.

Leghorn Bonnet.—Glistening satiny maize or straw colour.

Flava.—A noble bloom.

John Ruskin. — Orange-yellow shaded pink; splendid.

Fairy Queen.—Rich heliotrope and yellow.

Negrette. — Glistening black, cup-shaped, as Bouton d'Or.

The Fawn.—This is a great beauty, like Bouton d'Or in shape, with the colour of a dove, and with white edges.

La Merveille.—Terra-cotta coloured, shape that of Mrs. Moon, and richly perfumed.

Mariana.—Orange-scarlet, with centre of old gold.

Maculata in several forms. They resemble Ixioides, with dark zones.

Spatulata aurantiaca maculata.—Rich orange, with dark centre; a great beauty.

Sprengeri.—Only just in flower.

Firefly.—Rich orange, with green and gold base; sweet scented.

Eye Bright.—This may be called "Fireblast;" the blaze of scarlet and yellow is lovely.

Shandon Bell, York and Lancaster, Silver Queen.—A globe-shaped flower of great beauty.

Bridesmaid.—Rose, striped with pink.

Gala Beauty.—This is a great beauty.

Didieri alba.—Market-men should have this white Tulip, like a Niphetos Rose.

Mrs. Moon.—The finest yellow Tulip extant.

Gesneriana lutea.—Intense gold-yellow; sweet scented.

G. lutea pallida.—Pale yellow; sweet scented.

G. Rosalind. — Glistening rose, with white centre.

G. Stella, or Maltese Cross.—Rose, with blue and white base.

G. "Blue Star" (cœrulea).—Rose, with dark blue base.

Macrospila.—Dazzling scarlet, with black zone; Sweet Pea scented.

Vitellina.—Soft yellow; almond scented.

The citizens of Cork are going to have another Industrial Exhibition this year, the one of 1902 having been such a great success. It is to be opened the first week in June by the Earl of Dudley, and it is hoped that the King will visit the south of Ireland this summer, and very likely see the exhibition.

RUBUS MOLUCCANUS.*

THIS is the correct name of a Rubus with ornamental foliage, shown at Ghent, and more recently by Mr. Lloyd at a meeting of the Royal Horticultural Society (fig. 123). It is a native of the eastern Himalayas, Khasia, Burma, and the Malay archipelago. It is extremely variable as to its foliage, and this circumstance, as well as its wide distribution, will account for the many names it has received.

It is a climber, with tomentose stems, cordate and palmately lobed leaves. In the plant as shown, the leaves were palmately five-lobed, the upper surface of the leaves was deep green in the centre, and with broad stripes of paler colour at the margins and along the nerves, and the lower surface was thickly clad with cream-coloured down; the stipules were leafy and foliaceous. The plant was shown under the name R. reflexus.

* *Rubus moluccanus*, Linnæus, Hook. f., *Flora of British India*, ii. (1878), p. 330.

BELGIAN HORTICULTURE.

(Continued from p. 290.)

BRUGES.

MESSRS. SANDER & SONS' great horticultural establishment is the largest of those in or near to the quaint old town of Bruges, and there is a peculiarity about it that, at every visit, with any length of time between, we find a new block of houses, equal in extent to that of any ordinary nursery, in the course of construction. This time the new block is for large importations of Phalænopsis and other warm-house Orchids; last time the new venture consisted in what may be regarded as a separate nursery entirely devoted to the culture of Araucarias, and which now have an immense stock of beautiful specimens in it.

THE ORCHIDS

are represented by large ranges of houses filled chiefly with Cattleyas, Lælias, and Odontoglos-

sums, together with a large number of hybrids. Terre de bruyère, or leaf-soil as it is called, is entirely used for all Orchids here, and with the very best results. The pots are simply crocked as for any other plant, and the plants fixed by filling in with leaf-soil to within an inch of the rim of the pot. Freshly-imported plants are left in this way, just roughly filled in until they are well rooted, and then a surface of sphagnum-moss is given. So well do the plants take to this leaf-soil, and so quickly do they root into it, that Cattleyas and other Orchids imported but a few months ago can scarcely be turned out of the pots, so firmly are they rooted. Here, as elsewhere, the only caution given about leaf-soil for Orchids is to be careful and not to afford water in excess.

In one house was a good show consisting of Miltonia vexillaria, M. Roezli, Epidendrum × Endresio-Wallisii, and some fine Cypripediums, including C. callosum Sanderæ, C. insigne Sanderæ, C. × Madelaine, and C. Mastersianum. Next came a houseful of a wonderful new importation of Vanda cœrulea, then a range of four large span-roofed houses filled entirely with Cattleya labiata; a house of C. Trianæ and C. Schroderæ, the former having a very fine pure white variety in bloom, and the latter a varied collection in flower; a houseful of Dendrobium Wardianum, a number of magnificent specimens of Cattleya Warscewiczii Sanderiana, the pot of one of which had to be broken to show the profusion of roots; a range of Odontoglossums, chiefly of the Pacho form of O. crispum, with some very fine varieties, both white and spotted, in flower. Here, it may be remarked, that

Fig. 123.—Rubus moluccanus. (see p. 308.)

scarcely a plant has missed sending up flower-spikes this year, and all are in fine condition. Seeding is being actively pushed on, and many of the best varieties have large seed-capsules ripening. Among the batches in flower noted were O. × Adrianæ, O. × Loochristyense, O. polyxanthum, O. triumphans, O. × Wilckeanum, O. Hallii, O. × Rolfeæ, O. × Harryano-crispum, and a very fine lot of O. Pescatorei. Then come houses of Oncidiums, with good shows of flowers on O. Marshallianum, O. Forbesii, O. curtum, and O. concolor; a house of Lycastes and Miltonias; and large quantities of most of the showy kinds in their various quarters.

Palms, Dracænas, &c., are grown by the thousand, and of Kentias an immense number of plants occupy whole blocks of houses, the specimens ranging from the germinating seedling to the show examples 12 feet high. For beauty and elegance none can approach Kentia Sanderiana, which has the hardiness of K. Forsteriana, with the graceful habit of Cocos Weddeliana, or some other hot-house kinds. Dracænas are also grown in great quantity, both green and coloured; among those of recent introduction, a houseful of Dracæna kewensis shows it as the best. It is the most ornamental, and as useful for decorative purposes as an Aspidistra.

Azaleas are a specialty, and Messrs. Sander secured the premier prize for them at the recent Quinquennial, a feat which it had been deemed an impossibility for any cultivator not in the Ghent radius. Raising new varieties from seed is being courageously undertaken, notwithstanding the fact that it is proved that at least ten thousand carefully crossed seedlings have to be raised before ten worth propagating and sending out are obtained: and the immense number of unworthy ones have to be ruthlessly destroyed.

New Camellias are also being raised here, and so far as the present experience goes, the single-flowered and semi-double find the readiest market. Buyers seem to have got tired of the geometrically formed doubles, as they did with show Dahlias long ago. A new departure is being worked to supply pyramid-shaped as well as bush Azaleas for export, and many thousands are now being planted out in their beds in the open ground to prepare for autumn sale.

Houses filled with Caladiums, new plants, which proved the fine feature at the Ghent show, and most of which were specially illustrated for the *Gardeners' Chronicle*, were noted; then more Kentia and other Palm-houses, one of them being filled with beautiful specimens of Phœnix; a house of scarlet-spathed Anthuriums and Begonias, and several houses of pretty subjects useful for decoration and for "table plants."

In the open ground there are acres covered with thousands of Sweet Bay-trees in tubs, both pyramids and standards, and ranging in size from the specimen 2 or 3 feet high to the massive tree 8 or 10 feet in height.

In the quarters the early-flowering Rhododendrons were in bloom, and thousands of Lilies and other bulbous plants were pushing up growth and bloom, and everywhere, notwithstanding the great extent of the place, perfect tidiness and order prevail.

And how is the enormous expense of keeping such an establishment met? A peep into an immense packing-shed, so crammed with packages of Orchids, Palms, Azaleas, new plants, &c., that there was no room for visitors, suggested a reasonable solution.

M. Vincke-Dujardin.

In this fine establishment Orchids and Palms almost entirely occupy the accommodation of the enormous blocks of houses which run on each side of the central transept. A peculiarity of the large blocks of houses is, that there is no partition between the houses below the level of the staging, an uninterrupted view being obtainable beneath the staging from one end of the block to the other.

M. Vincke-Dujardin is one of the oldest and best Odontoglossum growers in Belgium, and of the twenty-eight Orchid-houses, over two-thirds are devoted to Odontoglossums, and chiefly to O. crispum, all of which are in fine health, and well furnished with flower. A large business is done in cut flowers of Orchids, and the stock is arranged mainly with a view to that object.

Other fine stock noted was a house of magnificent specimens of Lælia purpurata, houses of Cattleya labiata, C. Schroderæ, C. Mossiæ, C. Mendeli, &c.; a very fine stock of Vanda suavis and V. tricolor, showy flowers of Ada aurantiaca, Oncidium Marshallianum, and other Brazilian Oncidiums, a good lot of Cypripediums, Masdevallias, &c.

About twenty houses are devoted to Palms, principally to Kentias, and among other fine batches noted were green and variegated-leaved Aspidistras, Araucarias, and other decorative plants. Of Bays there is a magnificent stock, in all sizes, up to the treasured giants, a few of which have been in the family for over 130 years, and which are regarded as heirlooms, and are consequently not for sale.

Notwithstanding the immense quantity of Orchids in flower away at the show at the time of our visit, there was yet a good display of bloom.

(To be continued.)

MARKET NOTES.

BLACK HAMBURGH GRAPES.

These are improving in quality, and the prices realised are very satisfactory. The Grapes from Worthing, while better than for the last few years, still show a slight want of colour. The finer berries make amends to a certain extent for lack of colour. Undoubtedly some of the best samples on the market are those sent from the Rusper Vineries, Faygate, Horsham, whose manager is Mr. T. M. Le Pelby. This revival of the trade in Hamburgh Grapes is a satisfactory sign, and if growers will only devote their skill to perfecting the samples sent to market, there is money to be made by growing this variety. The evil to be avoided by many cultivators is the crowding of the vineries with other plants, such as Strawberries. While admitting that some little must be and may be done in the matter of catch crops, the Vines as the best paying crop should not be lost sight of. Sussex Grapes are good in every point, and the market-growers think that this is in great measure due to artificial heating and high feeding. *Stephen Castle.*

The Week's Work.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury.

Potting. — Those plants now commencing to grow should be examined, and any that need repotting or top-dressing afforded proper attention in these particulars. The long-bulbed section should be attended to first, such as Cattleya granulosa, C. bicolor, C. velutina, &c., which make roots freely, and need a porous compost and good drainage. For this purpose turfy-peat and leaf-soil in a rough state, and in the same proportions as I advised in an earlier Calendar, will be found suitable. Let the soil be worked in among the roots, and press the same moderately firmly. Remove the aged pseudo-bulbs and dead roots from the plants previously, and finish off with a layer of peat and fresh sphagnum. These plants should be placed together in the higher and warmer part of the house, and be sparingly afforded water for some time afterwards. Many of the hybrids that flower in autumn and winter are likewise beginning to grow, and need a similar kind of treatment; these are Lælio-Cattleya Charlesworthi, L.-C. Sunray, L.-C. Warnhamensis, L.-C. Cappei, Cattleya Martini, C. Portia, C. Mrs. J. W. Whiteley, C. Ariel, &c.

Odontoglossum-house. — The plants are now making a fine display, and we have grandly in flower O. crispum and its varieties, O. Pescatorei, O. polyanthum, O. luteo-purpureum, O. Halli, O. cirrhosum, O. Andersonianum, and others. When flower-spikes of large size are allowed to remain on the plants for any length of time the pseudo-bulbs shrivel a good deal, and it is advisable to remove them after they have been expanded for a reasonable length of time. It is a mistaken practice when a plant shows signs of exhaustion from over-flowering to afford much water, with the idea of restoring plumpness, many plants being lost by the practice, and merely sufficient water to prevent the potting materials becoming quite dry is needed, till new growth takes place.

Temperatures.—The exact temperature for any one kind of house cannot be given, so much depending upon the state of the weather, &c., but the following data will suffice as a general guide, keeping to the higher ones when the weather is mild, and to the lower ones in cold, dull weather:—East Indian-house or stove, by day 72° to 80°, by night 65° to 70°; Cattleya-house, by day 65° to 72°, by night 60° to 65°; intermediate-house, by day 62° to 68°, by night 58° to 62°; cool or Odontoglossum-house, by day 58° to 64°, by night 52° to 58°. On bright days a further rise in the warm-houses of 10° to 15° by sun-heat will be beneficial to the plants, while the heating apparatus should be always kept slightly warm, so as to assist the ventilation. The latter should be afforded by the lower ventilators, except in very hot weather, when it may sometimes be necessary to open those at the top, and these should be used only during the mid-day hours, closing them at 2 P.M., which will have the effect of raising the degree of warmth considerably, and rendering fire-heat unnecessary till late in the evening.

Damping the Houses, Syringing, Shading, &c.—Let the floors, walls, stages, &c., be moistened frequently, and many of the plants syringed overhead early in the day, so as to allow the moisture to evaporate from the leaves before nightfall, otherwise, if they remain wet during the night, and the temperature goes down, spotting will occur. Shading will now need a good deal of attention on the part of the gardener; the subjects which can endure sunlight should be given light positions in their respective houses, while the shady parts of the house should be devoted to those that are spoiled by ardent sunshine. Keep the air of the house in a sweet state by the admission of air in favourable weather.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

The Fernery.—A re-arrangement of the inmates becomes a necessity when active growth has set in, or very soon damp and crowding cause the disfigurement of the plants. The roots have now got into the new soil afforded them a few weeks ago, and more water may be safely applied. Tall growing varieties, such as Adiantum Williamsii, A. concinnum latum, A. mucrophyllum, A. trapeziforme, and others, should be afforded support by placing a few stakes round the rims of the pots, with a piece of string passed round them. Tree-Ferns should be afforded abundance of moisture during the growing season, either applied by means of the watering-pot or the syringe, directing the water against the stems and on the undersides of the fronds. The Gymnogrammas and Adiantum Farleyense should be placed in the drier part of the fernery, and not be much syringed, or kept very moist at the root. Although the fronds of Adiantums last for a longer time in a cut state when the plants are grown under slight shade, most Ferns should be afforded a fair amount of shade during the best part of the day from the present date to the month of October, with plenty of moisture in the air during sunny weather; and a temperature by day of 80° with full ventilation, and one by night of 60°.

The Stove.—Maintain a night temperature of 68° to 70°, rising to 80° or 85° by day with sun-

heat, ventilating when the thermometer shows 78°, and closing at about 3 P.M., well syringing such of the plants as Codiæums, Dracænas, Marantas, &c., or thrip and spider will soon infest them. The plants should be re-arranged at intervals of a few weeks, or they will become one-sided, especially if the stove is a lean-to. Roller or other portable shading should be made use of from 8 o'clock to 10 A.M., according to the position of the house or pit, and in most cases it may be removed before 5 P.M. Such climbers as Allamanda, Dipladenia, Cissus discolor, Gloriosas, and Rondeletias, will need frequent attention in the matter of keeping the leading shoots tied down to the trellis, and preventing the entanglement of the same. No further stopping of the shoots should be practised.

General Hints.—The following plants will be ready for pricking out into shallow pans or cutting-boxes at a distance of 2 to 3 inches apart. The soil used for this purpose should be of a light sandy nature: Campanula pyramidalis, Francoa ramosa, Primulas, and Cinerarias. Place the pans or boxes in a cold frame, and shade from the sun for a few days, but afford little ventilation till they begin to grow anew. The last two require shade more or less throughout the summer. Browallia speciosa major should be propagated by seed, or cuttings taken from old plants. This plant makes a capital companion to Begonia Gloire de Lorraine in autumn displays, the two colours contrasting admirably.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Bulbs.—Coming to these, there is often a great waste among the Tulips and Hyacinths used in the spring flower garden. There is no necessity to throw these away simply because they have not finished their growth, for if Hyacinths be lifted carefully and placed somewhat thickly in deep boxes filled with sandy soil, the growth of the new bulbs is not much checked, and they may then be stored in small compass in the frame ground, and supplied with water till the foliage ripens in a natural way. Hyacinths are scarcely suitable for a bedding display again, but they are useful for filling odd corners having an open, sunny aspect. Early Tulips are as amenable to this kind of treatment as the foregoing.

Violas.—If spring-planted, and they are expected to flower for a long season, they should have all the flowers removed during the first few weeks, in order to strengthen the plants for future flowering.

Dahlias.—Spring-struck plants should be repotted or placed thinly in deep boxes, for though the planting season is close at hand, these plants should not be starved by keeping them in pots that are too small for their requirements.

Campanula pyramidalis.—Plants still in pots, and not required for greenhouse decoration, may be turned out of their pots and planted in a warm, sheltered position, where they are to flower. If neatly staked, these plants are very effective in groups, placed near to walls or ornamental stonework.

General Work.—Where spring and summer bedding obtain, it will now be necessary to clear away the spring flowering plants and prepare the beds for their summer occupants. The reserve beds and borders into which the spring flowering plants will be placed should have been well prepared for their reception, which, in the case of the perennial tufted species, such as double-flowered Primroses and Daisies, which cannot be raised from seeds; Aubrietias, Myosotis dissitiflora, and others, should be split up and the younger portions only replanted, wide enough apart to allow space for them to grow. The soil should be enriched with decayed manure or leaf-mould, or both together, with a sprinkling of sand if the soil is heavy. The popular white Arabis should be propagated from cuttings, dibbling them into sandy soil and planting out when rooted. As seedlings are apt to vary in purity and in the size of the flowers, so that a good stock once obtained should not be mixed with seedlings. I find that the double form of A. albida strikes freely and makes strong plants in a season, and it is a thoroughly healthy grower, and persistent in flowering. It is, however, to be hoped that the single-flowered form will not be discarded by the gardener in its favour, for it certainly does not give the "Snow in Summer" effect that earned the older form its popular name. The yellow Alyssum (saxatile) should be propagated by slips treated similarly to the Arabis, and it may also be easily raised from seeds, though I do not find seedlings quite so compact or floriferous as a good strain propagated from slips proves to be.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Outdoor Vines.—Disbudding should be taken in hand forthwith, the strongest and best-placed shoots being alone retained for covering the wall-space between the main rods, all overcrowding being avoided, and with this end in view, one shoot to each 18 inches of main rod is ample with strong-growing varieties; but Royal Muscadine, a variety having small foliage, may have the shoots left closer together. Any rods which may have broken badly, or which exhibit signs of being worn out, should have a strong shoot trained up from the base that will in a year or two replace it.

The Fig.—If the young growths are sufficiently advanced, disbudding may now be proceeded with, rubbing off the shoots with the finger-and-thumb, and only leaving as many as will cover the allotted space. Do not crowd the shoots together, or they will not mature, and fruits will be few. Let the young shoots be pinched at the fourth or fifth leaf, and encourage the later growths that break from these shoots by affording them air and sunlight, as it is these which mostly produce the earliest and best fruits.

The Gooseberry. — The April frosts greatly thinned the fruits, but if any bush is, in spite of these, well laden with fruits, let them be thinned for culinary uses as may be required, retaining the best-placed and largest berries for dessert. Keep a sharp look-out for the caterpillars of the saw-fly, and resort to hand-picking immediately on their appearance. The late rains have caused a plentiful crop of weeds to appear, and advantage should be taken of fine weather to hoe between the bushes. Black Currants suffered greatly from frost, and the crop will be a very moderate one.

General Remarks.—Pear and Plum-trees in this neighbourhood have lost the whole of their fruit, and even those on walls where protection was afforded are now casting their fruits. The Apple crop is greatly reduced, for quite half of the flowers perished, and even unopened buds were in many cases destroyed.

THE KITCHEN GARDEN.

By John Fleming, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Vegetable-Marrows.—If in frames, these plants will need constant attention in the matter of stopping the leading growths, pegging down the same, and fertilising the blossoms. This being performed, the only other operation is to nip out the points of the lateral shoots, so as to prevent crowding. The plant when in bearing requires plenty of water at the root, and an occasional application of liquid-manure, and the frames to be well ventilated in mild weather. Plants now being grown under glass for future planting out-of-doors must be kept near the glass, and be shifted into bigger pots before they become pot-bound.

Celery.—As fast as a quantity of the pricked-off plants become sufficiently large for planting in the trenches, apply plenty of water to the nurse-beds, and plant the next day in the trenches already prepared for their reception. It is always better to plant before the seedlings get of a large size, and thus avoid giving much of a check to the plants, or having to use shading. Celery should be lifted with compact balls, and transferred to the trenches, which is best performed with a bright trowel, the plants being placed carefully in trays or boxes, planting them forthwith, making the soil firm about the ball. When two rows are grown in a trench, put the plants opposite to each other, this being the more convenient when earthing-up has to be carried out. After planting, afford water, and do not let the plants lack water at any part of the season. Prick out into frames or nurse-beds Celery from the later sowings, shading the plants from hot sunshine until re-established, and keeping them well supplied with water. Celeriac, or Turnip-rooted Celery, should also be planted out on the flat on deeply dug and well-manured land, planting it at a distance of 2 feet between the rows and 18 ins. from plant to plant.

Peas.—The early Peas out-of-doors will be late this year, owing to the severe frosts experienced in the month of April. It will be prudent, as soon as a fair quantity of pods are set, to pinch out the points of the haulm, which will tend to hasten the swelling of the Peas. Mould up and stake successions when 3 or 4 inches high, and apply fresh soot and slaked lime to Peas that are coming through the soil. Sow late varieties in prepared trenches. The best of the late varieties here is Veitch's Autocrat, which has a strong constitution, and is not liable to be infested with mildew, as for example, Ne Plus Ultra.

General Remarks.—Prick out Cauliflowers and Broccoli into nurse-beds at 4 inches apart. I prefer to plant out early-sown Cabbages and Brussel Sprouts into their permanent quarters, without pricking them off previously. Remove the flowering shoots of Rhubarb, and thin seedlings to 6 inches apart, and afterwards use the Dutch-hoe among the plants. Dig or trench vacant ground. The continuous showery weather has considerably delayed outside work; so let arrears of work be brought up without delay.

FRUITS UNDER GLASS.

By T. H. C.

Muscat Vines, if coming into flower, may be afforded a night temperature of 70° to 75°, and 80° to 85° by day. Damp down as usual, except in the morning, in order that the air may be dry at mid-day for the distribution of the pollen. Air should be afforded daily in quantity, according to the state of the weather. Muscats after flowering may be afforded a night and day temperature of 5° less than that given above, plenty of aërial moisture, and plenty of water at the root.

The Pine-stove.—The fruits of Queen Pines that were started early will now be swelling rapidly, and any that lean to one side should be held erect by means of two neat stakes placed one at each side of the fruit, and the latter fastened thereto with bands of matting attached to the stalk and crown. Plants having fruits at this stage should be afforded mild manure-water whenever moisture is needed. Guano may be employed if sheep's or deer's-dung, or the drainings from cattle-sheds, cannot be obtained, and it is always beneficial. Upon the first signs of ripening observed in a fruit, apply clear water, and gradually diminishing the quantity until not any is afforded. In bright weather, syringe the plants lightly, damping all paths, walls, and surfaces, at closing time, and let the temperature rise to 90° by sun-heat; afford a night temperature of 70°, and bottom-heat of 85°. Ventilate freely in fine weather, beginning early in the day, gradually increasing the amount of air admitted, if the warmth allows of it being safely done. In fitful, cloudy weather, this is a matter that requires close attention.

Succession Pines.—Plants that were put into their fruiting-pots in February or March, and are now growing freely, will need water frequently, and the entire mass of soil thoroughly moistened at each time water is applied. After a spell of dull weather, apply thin shading, so as to avoid the burning of the leaves. Secure a sturdy growth by strict attention to ventilation, and by making the most of solar warmth in preference to much artificial heat when the outside conditions are favourable. Afford a night temperature of 65°, and one by day of 80° to 85°. Maintain a moist air in bright weather by frequently damping the paths and other surfaces, and lightly syringe the foliage at closing time. Plants required to fruit in the autumn, which have their pots filled with roots at this date, should be kept slightly drier, and afforded a lower temperature than hitherto, when after a month of this sort of treatment they will throw up their fruit if afforded a brisk top and bottom-heat, and a thorough application of tepid water.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, MAY 18—Surveyors' Institute, Meeting.

TUESDAY, MAY 19—Royal Horticultural Society Committees Meet; also National Tulip Society's Show and Conference at Drill Hall.

WEDNESDAY, MAY 20—Royal Caledonian Horticultural Society's Show, at Edinburgh (two days).

FRIDAY, MAY 22—Royal Botanic Society, Lecture.

SALES FOR THE WEEK.

MONDAY, MAY 18—
Sale of Palms and other Plants at Merton House Nursery, Chiswick, by order of Mr. W. Iceton, by Protheroe & Morris, at 12.

TUESDAY, MAY 19—
Sale of Palms and other Plants at Merton House Nursery, Chiswick, by order of Mr. W. Iceton, by Protheroe & Morris, at 12. Sale of Specimen and Half-Specimen Exhibition Plants, Ferns, &c., at The Quarry, Sevenoaks, Kent, by Protheroe & Morris, at 12.

WEDNESDAY, MAY 20—
Japanese Dwarf Trees, Palms, Orchids, &c., at Stevens' Rooms.—Palms, Plants, Liliums, Perennials, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Orchids, Gateacre Nurseries, Liverpool, by John Cowan, at 12.30.

THURSDAY, MAY 21—
Clearance Sale of Adiantums and other Stock, Greenhouses, Piping, and the Goodwill of Postal Fern Trade, at The Nursery, Clarence Road, Sidcup, by Protheroe & Morris, at 12.

FRIDAY, MAY 22—
Orchids in variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick—55·5.

ACTUAL TEMPERATURES:—
LONDON.—*May* 13 (6 P.M.): Max. 60°; Min. 41°.
May 14 (Noon): 60°: dull.
PROVINCES.—*May* 13 (6 P.M.): Max. 54°, Home Counties; Min. 48°, Orkneys.

Influence of the Stock upon the Scion.

MUCH has been written on this subject, and as knowledge has increased, so the explanation of the phenomena witnessed as a consequence of grafting has been rendered less obscure. The discovery by GARDINER, of Cambridge, of the continuity of protoplasm between cell and cell is not without a bearing on the subject. Much, however, requires to be done before the effect of stock upon scion, or of scion on stock, can be fully understood. We therefore welcome a communication made to the Academy of Sciences by M. LECLERC DU SABLON, as it breaks new ground, and deals with the subject from a point of view not hitherto attempted, so far as we know.

After alluding to the influence of the stock on the scion as observed in everyday practice, M. LECLERC DU SABLON goes on to give an explanation of one of the causes of this influence. This explanation was arrived at by the chemical investigation of the graft at various stages of growth. Thus, some specimens of Duchesse d'Angoulême grafted on the Quince and on the Pear-stock respectively were cultivated under the same conditions, and analyses were made at various periods during growth to ascertain the relative quantity of hydrocarbons (starch, sugar, &c.), stored up in the tissues of the two sets of plants.

The following results were obtained in trees two years old from the graft:—

Date of Analysis.	Stem grafted.		Difference in favour of the Quince.
	On the Pear.	On the Quince.	
January 19	23·7	25·9	+ 2·2
February 26	21·7	25·4	+ 3·7
March 28	24·3	27·9	+ 3·6
May 9	21·6	21·3	− 0·3
June 17	22·2	22·6	+ 0·4
July 23	22·6	22·9	+ 0·3
September 7	21·5	25·8	+ 1·3
October 16	23·4	25·4	+ 2·0
November 22	23·4	25·3	+ 1·9
December 26	23·4	25·5	+ 2·1

The figures recorded in the above table indicate the amount of reserve hydrocarbons included in 100 parts of dry matter. During autumn and winter the reserve matters accumulated in the stems are markedly more abundant when the stock is Quince. In spring, the plant is thus enabled to devote a greater quantity of food-matter to the formation of the fruit; consequently the production of it is more considerable.

But why is the starch more abundant in stems grafted on the Quince? In all cases the leaves have the same composition, and assimilate probably in the same manner; thus, one part of the reserve-matter formed passes into the root, the rest remains in the stem. Now, as previously mentioned, the Quince roots are less rich in reserve-matter than those of the Pear, and consequently have derived a smaller quantity of these materials from the leaves; thus it is that the stem grafted on the Quince remains richer in nutritive matters. It will be further understood that the reserves in the stem being nearer to the fruits than are those in the root are more readily utilised.

Experiments have been undertaken with several plants with a view to confirming what has been stated in the case of the Pear. If the results confirm those already obtained, it may be concluded that the most advantageous stocks are those whose roots store the least quantity of reserve matters. The stems in this case contain a larger proportion of the substances elaborated by the leaves, and are rendered more fertile. Thus, in the case of plants the cultivation of which is still incompletely understood, it may be possible to avoid much uncertainty in the choice of stocks.

We hope M. LECLERC DU SABLON will continue his very interesting researches, which hold out promise of results of direct practical value.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Floral and Fruit Committees of the Royal Horticultural Society will be held on Tuesday, May 19, in the Drill Hall, Buckingham Gate, Westminster, 1 to 5 P.M. A special exhibition of Tulips will also be held under the auspices of the National Tulip Society at the same time and place. A schedule of the prizes offered, with particulars as to the conditions of entry, &c., can be obtained on application to A. D. HALL, Esq. The Oast House, Harpenden. A conference on "English Tulips" will be held at 3 P.M.

—— At a general meeting of the Society, held on Tuesday, May 5, seventy-four new Fellows were elected, among them being The Marquis CAMDEN, The Viscountess CRANBORNE, The Viscountess DOWNE, The Lady RAYLEIGH, Lady CHURCH, Lady WALKER, and the Hon. A. H. T. DE MONTMORENCY, M.D., making a total of 679 elected since the beginning of the present year.

—— Intending exhibitors at the Temple Flower Show, to be held on May 26, 27, and 28, are requested to note that entries for the above show close on Monday, May 18, and that all entry forms should reach the office before 11 A.M. on that day. No plants can under any circumstances be entered on the day of the show, but single plants, &c., for Certificate may be entered as late as Thursday, May 21; address, Secretary, Royal Horticultural Society's Office, 117, Victoria Street, London, S.W.

—— The Royal Horticultural Society will hold an exhibition of British Grown Fruits and Vegetables at Chiswick on September 29, 30, and October 1. The prize schedule is now ready, and contains in addition to the list of prizes an authoritative list of dessert and culinary Apples, Pears, and Plums. Special prizes are offered for preserved and bottled fruits. A conference on "Vegetables" will be held on Tuesday, September 29, at 2.30 P.M., Mr. G. BUNYARD, V.M.H., in the chair. The following gentlemen have been asked to read papers:—1, "On Cooking Vegetables," Dr. BONAVIA and Mr. JAMES HUDSON, V.M.H.; 2, "On Vegetables all the Year Round for a Private Family," Mr. W. H. DIVERS; 3, "On Vegetables for Exhibition," Mr. EDWIN BECKETT; 4, "On Vegetables for Market," Mr. W. POUPART. Any contributions to the conference will be welcomed. Donations towards the Prize Fund will be gratefully received by the Secretary, Royal Horticultural Society, 117, Victoria Street, London, S.W., of whom copies of the schedule can be obtained. Applicants should enclose a stamped envelope ready addressed to themselves.

THE HALL.—We have the satisfaction to announce that a subscription has been received from Messrs. L. BOEHMER & Co., from far off Japan. It is gratifying to observe such evidences of good will from foreign countries. We have no right to expect contributions from foreign sources, but they are the more gratifying when they do come. The only practical question now is to erect, and adequately endow the Hall. When that is done, it will be time enough to take other matters into consideration.

LINNEAN SOCIETY.—The anniversary meeting of this Society for the election of a Council and Officers for the ensuing year, and for other business, will be held at the Society's Rooms in Burlington House, Piccadilly, on Monday, May 25, at 3 o'clock precisely. *B. Daydon Jackson, General Secretary.*

FROM MENABILLY.—We recently received from this Cornish garden, through the kindness of Mr. RASHLEIGH, some beautiful specimens of interesting shrubs, among them were:—

Pittosporum undulatum, with grey stems, shortly stalked, deep green, undulate, lanceolate leaves, and numerous yellowish flowers in terminal panicles.

P. lucidum is somewhat similar, but the stems are rich purple in colour, the leaves larger, very handsome, very deep green.

P. Mayi has also purple branches, but narrower leaves than in the preceding, and yellowish flowers.

P. Colensoi has purplish branches, oblong-acute, slightly undulate, shortly stalked leaves, and deep purple flowers.

Tetranthera glaucescens is a noble evergreen with the young shoots downy, leaves about 5 inches long and 2 inches in breadth, broadly lanceolate, tapering into a short stalk. The yellowish flowers are in globose heads springing from the axils of the leaves, and the anthers as in all the Lauraceæ open by small trap-door-like

valves, which are thrown back to admit of the dispersal of the pollen. All the above are evergreen.

Hoheria populnea is a New Zealand Malvaceous shrub or low tree, with brownish bark, leaves 1½ inch long by ¾ inch in breadth, and in form very like those of a Birch (Betula). The greenish-white flowers are individually small, but very numerous, in branching panicles, recalling the general appearance of some Spiræas, but the structure of the flowers is malvaceous.

AMALGAMATION OF THE ROYAL HORTICULTURAL SOCIETY AND THE ROYAL BOTANIC SOCIETY.—So long as we can remember, this proposal has been "in the air." Mr. RASCHEN, in a long discursive letter with which he has favoured us, urges that it is time this nebulous scheme was solidified in a concrete form. There is, of course, on theoretical grounds, something to be said in favour of such a scheme, but the objections to its realisation seem to us to be such at the present moment as to remove it completely out of the range of practical politics. Chiswick is further from London, and of the two, less smoky than Regent's Park. The Vincent Square site is not so nice as the Regent's Park, but it is more accessible to the majority of the Fellows; and the offices and library will be far more useful in Westminster than in Regent's Park. The thing to be done at present is not to dispute whether the two societies should amalgamate, or whether trade influence is too great at Westminster, but to build a Hall for the purposes of national horticulture as spacious and as suitable as means will allow. More active support is still needed for the building; for although, it is true, the Society has now a handsome reserve-fund, it would be far better if the greater portion of that fund were reserved to provide an endowment for the maintenance of the hall when built.

THE VEITCH MEDAL AND THE VICTORIA MEDAL OF HONOUR.—Our American and Continental friends appear to be a little "mixed" in their notions relating to these distinctions. The Veitch Medallists are relatively few in number. The honour is not confined to British horticulturists, and it is not conferred by the Royal Horticultural Society, although occasionally the President has been asked to make the presentation at a meeting of the Society. The Victoria Medallists number sixty-two, corresponding to the number of years of the good Queen's reign. They are all of British nationality, and receive their honour directly from the Council of the Royal Horticultural Society.

"ICONES SELECTÆ HORTI THENENSIS."—Two parts of this valuable publication are before us. As we have had occasion to remark before, the plates are excellent, and the critical remarks of M. DE WILDEMAN most useful to the botanist. The plants described are selected from those growing in the conservatories of M. VAN DEN BOSSCHE, of Tirlemont. The plants figured in the first and second parts of the fourth volume are Monnina xalapensis, t. 121; Rosa Beggeriana, t. 122; Cotyledon reticulata, t. 123; Goodenia ovata, t. 124; Betula papyrifera, t. 125; Illicium religiosum, t. 126; Coleonema album, t. 127; Goodia latifolia, t. 128; Leptocarpha rivularis, t. 129; and Notelæa excelsa, t. 130.

EXHIBITION SCHEDULES:—The second exhibition of the ANCIENT SOCIETY OF YORK FLORISTS will be held on May 20, and others on July 15 and September 9, which will be the last minor show for the present year. The twenty-fourth annual Chrysanthemum show will be held on November 18, 19, 20, in the Exhibition, York, and as usual, there are classes open to competitors living in any part of the country, the York show being one of the best displays of Chrysanthemums and fruits in the north of England. It may be added, that the reserve fund of the Society is now £215. The Secretary is Mr. GEO. F. W. OMAN, 38, Petergate, York.

THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY will hold its spring show on May 20 and 21, and the schedule of prizes includes about 120 classes for plants, cut flowers, fruits, and vegetables. An interesting event at this show will be the competition among under-gardeners to exhibit the best plan, drawn to scale, showing the draughtsman's ideas for laying-out a piece of ground of about 3 acres, the form of which and its elevations, &c., having been made known to all the competitors. The ground has to be laid out suitably for a suburban-residence garden. The 1st and 2nd prizes are given by Sir JOHN GILMOUR, Bart., who may be congratulated upon encouraging young men to engage in a task that must inevitably increase their knowledge and capabilities. We understand the plans are now in the hands of the judges. The great autumn show will be held on September 9 and 10 next, and there being over 264 classes, a first-class exhibition of fruits, plants, and cut flowers may be predicted. The annual report shows that there has been an increase in the number of members, and the funds are satisfactory. The secretary and treasurer is Mr. P. MURRAY THOMSON, S.C.C., 5, York Place, Edinburgh.

THE ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER will hold its usual Whitsuntide exhibition of Orchids and other plants from May 30 to June 3, inclusive. An exhibition of Roses will be held on July 11, at which substantial prizes will be offered for exhibits of sixty distinct Rose blooms, from nurserymen, and equally valuable prizes for twenty-four distinct Roses from amateurs. On July 11 and 12, also, a show of Dahlias will be held in the gardens, under the auspices of the National Dahlia Society. The Chrysanthemum exhibition will take place on November 19, 20, and 21, and the schedule includes twenty classes. The secretary is Mr. P. WEATHERS, Royal Botanical Gardens, Manchester.

LEICESTER ABBEY PARK FLOWER SHOW.—A large horticultural show will be held in the Abbey Park, Leicester, under the management of the Parks Committee, on August 4 and 5. The schedule includes 137 classes, for plants, flowers, fruits, and vegetables then in season. As much as £55 is offered as prizes in a class for a group of miscellaneous plants. The secretary is Mr. JOHN BURNS, curator of the Abbey Park.

THE DUDLEY HORTICULTURAL SOCIETY will hold its second annual exhibition and fête in the Buffery Park, Dudley (almost the centre of the "Black Country," in Staffordshire), on August 5 and 6. The first exhibition held last year was very successful. The secretary is Mr. H. DICKINSON, Sunnyside, Dudley.

THE EASTBOURNE FLOWER SHOW, will be held on August 9, in the grounds of Compton Place, by permission of the Duke of Devonshire. The schedule including eighty-seven classes seems to foreshadow an interesting exhibition for the numerous visitors likely to be at Eastbourne upon that date. The secretary is Mr. H. J. CAPON, 75, Terminus Road, Eastbourne.

SIR JOHN LLEWELYN POTATO.—This Potato was sent to the Royal Horticultural trial grounds at Chiswick, in 1900, to compete with forty-two other varieties that were to be tested, some new, and some well known varieties, such as Sutton's Ashleaf, Myatt's Ashleaf, Beauty of Hebron, Ninetyfold, &c. The whole of the forty-two varieties were planted on April 19; all made excellent growth, and with two exceptions all produced good crops free from disease. On September 11 the Committee were present to judge the trial, and the official report was as follows:—Sir John Llewelyn, kidney, white, eyes shallow, handsome; the heaviest crop in the collection, free from disease, haulm tall and robust; Award of Merit. The same year the raiser of this new variety grew at Swansea, South Wales, the remarkable crop of 23 tons to the acre of sound tubers. In addition to all the good qualities stated above, it is one of the best table varieties for winter use, white and floury. The tubers in 1901 fetched £40 a ton. In 1902, although there were as many more produced, they realised £40 a ton; while in January, 1903, they made the same figure. We are pleased to say we have now got this grand variety growing in our country, and our cultivators are confident it will prove one of the most valuable Potatos ever grown in Ireland. *Irish Farming World, April* 24, 1903.

COMPULSORY DESTRUCTION OF THE INSECT PESTS OF FRUIT-TREES.—Herefordshire fruit-growers, who met at the Mitre Hotel, Hereford, last week, discussed at length the Bill which has just been introduced in the House of Commons by Sir JAMES RANKIN, M.P., dealing with the diseases of fruit-trees. It was resolved: "That this Association approves generally of Sir JAMES RANKIN'S Bill for the eradication of disease and all injurious insects amongst fruit-trees in nursery gardens, and expresses the hope that it may be passed into law without delay; that Clause 15 should be struck out, and that the Bill should be made more universal in its scope." The Clause (15) objected to is to the following effect: "This Act shall not apply to occupiers or owners of land engaged in fruit-growing who are not nurserymen, but who may desire to sell or exchange surplus trees or plants of their own growing."

"THE COUNTRY GENTLEMEN'S ESTATE BOOK."—This is the official organ of the Country Gentlemen's Association. It contains numerous articles on estate management, forestry, farming, gardening, sports, and various other matters of interest to the proprietors or occupiers of estates. The first article is devoted to an account of Osborne, less than twenty lines are devoted to the gardens which are interesting as containing many plants which thrive in the genial climate of the Isle of Wight, much better than on the mainland east of Devonshire, and Cornwall. As a book of reference this publication is very useful. The forestry notes are contributed by Mr. JOHN SIMPSON, those on fruit growing for profit by Mr. J. GOULD and others. The tables furnish—if that were needed, a striking illustration of our lunatical arrangement of weights and measures, and of the necessity for superseding them by some rational and uniform system. Stewards and estate managers will find this book indispensable.

"THE SCOTTISH FIELD."—This publication, "devoted to manly sport and out-door life," will certainly please those for whom it is intended. It is full of interesting information, and of illustrations of scenery and of country life generally, the greatest drawback to the reader's enjoyment being the misplaced advertisements. These appear on the same pages with the letterpress, so that attention is constantly distracted from interesting notes and articles by these announcements. This is a peculiarity noticeable in many modern journals, but is always to be deprecated. It is on a par with the disfigurement of the country by huge advertisements in our fields. An effective way of putting a stop to such nuisances is to make a resolution, and keep it, not to purchase any of the goods so obtrusively thrust upon one's attention. The entry into the harbour at Dover and at Folkestone is defaced in this manner. We know that some who resent this offensive intrusion decline to purchase the goods in question. There is no excuse for the practice, as the opportunities for legitimate advertising are

abundant enough. Returning to the immediate subject under consideration, we note that the *Scottish Field* is published at 11, Bothwell Street, Glasgow, and 21, Paternoster Square, London.

"THE ANCIENT AND LOYAL CITY OF EXETER."—This is No. 23 of the handbooks published by the Homeland Association for the encouragement of touring in Great Britain, at St. Bride's House, 24, Bride Lane, Fleet Street, E.C. The book is by BEATRIX F. CRESSWELL, who disarms criticism by saying that, "I have but received the knowledge other authorities impart; adapted it for my own purpose, to distribute to those who will accept the effort. To make the knowledge and adaptation thorough, I have been over every inch of the ground, entered every building, seen with my own eyes every place described." The various chapters deal with the situation, geological formation, and early history of the neighbourhood; then with the city and cathedral of Exeter, the guildhall, city walls, and other interests, and finally with the suburbs. The appendix is devoted to chapters upon Worthies of Exeter, books about Exeter and local Notanda. There is an abundance of good illustrations from photographs and from drawings, so that visitors to the interesting city of Exeter cannot have a better companion than this well-equipped guide. To the horticulturist, Exeter is an excellent centre, as our columns often testify.

"AN IDEAL HOUSE IN A BEAUTIFUL CITY."—This pamphlet, written by Miss ESTHER WOOD, and illustrated by CHARLES E. DAWSON, is an account of the shop of the Jaeger Company in Edinburgh. It is claimed that the building is constructed and decorated with full reference to the claims of art as well as to those of utility, and is therefore a step forward towards perfection in architecture.

"FLORA AND SILVA."—The May number opens with a timely article on blue flowers in the wild garden, attention being called to the Muscaris, Anemones, Myosotis, Scillas, and Omphalodes, accidentally called Omphiloides. Mr. WOLLEY DOD contributes a useful article on the true Geraniums. The Camellia as a hardy shrub is valuable for its foliage, but although it does produce its flowers in the open, as at Kew, it is hardly to be recommended as a flowering shrub, except perhaps in Cornwall and south-west Ireland. Stuartia, again, is very beautiful when it does flower, but that is not often.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The usual monthly committee meeting of this society was held at the Caledonian Hotel, Adelphi Terrace, Strand, on Monday evening last, Mr. THOMAS WINTER in the chair. Six new members were elected, making fifty-one elected this year. Eleven members were reported on the sick fund.

EDINBURGH SEED TRADE.—On the evening of Friday, 1st inst., Mr. HARRY ERSKINE, of 80A, George Street, was entertained at a complimentary dinner by a very large circle of friends. Mr. WILLIAM NEWTON presided over a splendid gathering of over seventy gentlemen. In the course of the evening the guest was presented with a massive silver Rose-bowl on an ebony plinth with a suitable inscription, an artistic illuminated address with the names of over 130 subscribers, also a purse of sovereigns; and in the course of his speech the Chairman, who made the presentation, gave expression to the high esteem in which Mr. ERSKINE was held by all with whom he came in contact. Mr. ERSKINE in replying gave interesting reminiscences of his long experience in the Edinburgh seed trade, also his friends and neighbours in George Street, going over a period of nearly forty years. Several toasts were given during the evening, and heartily responded to. The musical part of the programme was well sustained by a host of friends. The *menu* card was got up in excellent style, with Mr. ERSKINE's photograph reproduced on the front page.

STOCK-TAKING: APRIL.—Considering that there were the Easter holidays in the month of April, exact comparison with the same month last year, when there were no holidays, is precluded. Nevertheless, the Board of Trade Returns for the month are very satisfactory. The imports for the month foot up at some £43,802,327, against £46,199,928 for the same period last year, showing a decrease of £2,397,601. The following figures distinguish between supplies of food and drink for the worker, and the material upon which he exercises his talent in the way of manufacturing:—

IMPORTS.	1902.	1903.	Difference.
	£	£	£
Articles of food and drink—duty free	9,240,998	8,911,286	−329,712
Articles of food & drink—dutiable	8,289,139	7,765,536	−523,603
All other Imports...	28,669,791	27,125,505	−1,544,286

The range of subjects under the former category is enormous, cold meat (in carcase), to pickles (in barrel and bottle). In the matter of cereals we may state that the latest issue of corn averages show a reduction on the week of 3*s.* 3*d.* per bushel in Wheat, of 5*s.* in Barley, and of 4*s.* 4*d.* in Oats. But this decline in values is not a thing of to-day, but has been noted for months past. In dutiable articles imported there is a large increase in Coffee—whether this gives promise of a change in public taste cannot be determined yet. Fruit begins to get more interesting as prices look up, and the effects of atmospheric influences on last year's crops abroad are patent to all lovers of good fruit. Our usual table supplies interesting comparisons, as follows:—

IMPORTS.	1902.	1903.	Difference.
Fruits, raw—	Cwt.	Cwt.	Cwt.
Apples	124,343	177,421	+53,078
Apricots and Peaches	18	21	+3
Bananas: bunches	216,208	216,885	+677
Cherries	25	.....	−25
Gooseberries	1	68	+67
Grapes	1,547	1,782	+235
Lemons	101,968	81,037	−20,931
Nuts—Almonds ...	8,340	5,008	−3,332
Others, used as food	53,783	46,037	−7,746
Oranges	806,087	719,269	−86,818
Pears	812	2,686	+1,874
Plums	22	15	−7
Strawberries	13	2	−11
Unenumerated ...	4,971	3,923	−1,048
Vegetables, raw—			
Onions ... ...bush.	733,131	644,375	−88,756
Potatos ... ... cwt.	233,816	421,489	+187,673
Tomatos... ... ,,	56,577	104,353	+47,776
Vegetables, raw, unenumerated ...value	£80,506	£47,349	−£33,157

From information supplied us by the various carrying companies, we find that since our last report nearly 200,000 boxes of fruit (Apples, Pears, &c.), have been shipped for home. This is good news for all, and will help to check a little the upward tendency. By the way, an endeavour "to corner" Currants has been made, but the Greek has not yet taken to the scheme—the grower does not see where his extra profit is to come from, nor anyone else. And here it may be noted in connection with dried fruits, that Cyprus is sending us a pretty large supply of Raisins in answer to our invitation. As for the timber supply, the value of that for April exceeds by £260,000 the value of the imports in the same period last year. The figures for the imports of the past four months are £177,385,167 against £178,841,736 for the same period last year, or a decrease of £1,456,569. Coming to—

EXPORTS,

we have to note that the value for the month is £23,136,373 against £23,492,529, or a decrease of £356,156; read together with the holiday item, it will be seen that an increase is the actual result of comparison with the working days. There are sundry items of decrease, including chemicals—also by the way "down" in imports, but telegraph-cables figure for over £866,000, and so all is well. It now remains only to record that the value of our four months' exports is placed at £95,923,639; the figures for the same period last year are £91,291,217, showing the satisfactory increase of £4,632,422, a state of things which it is devoutly to be wished may continue.

EAST SUSSEX COUNTY COUNCIL.—On the occasion of a meeting of the newly constituted Education Committee for the County of East Sussex at Uckfield Agricultural College on the 8th inst., when the Hon. T. S. BRAND presided, Mr. W. GOARING was appointed Lecturer on Horticulture at a salary of £250 per annum, plus travelling expenses.

RE-ISSUE OF MR. G. MASSEE'S BOOK ON PLANT DISEASES.—Since the first appearance of *A Text-book of Plant Diseases*, by GEORGE MASSEE, F.L.S., Principal Assistant at the Royal Herbarium, Kew, several destructive diseases have appeared. The leaf-blotch on Cucumber and Melon has caused enormous loss in the neighbourhood of London alone. A second edition of the book, revised and enlarged, is being issued at once by Messrs. DUCKWORTH & Co.

ROYAL SCOTTISH ARBORICULTURAL SOCIETY.—The recently published Part I., of vol. xvii., of the *Transactions of the Royal Scottish Arboricultural Society* contains reports, by Messrs. GEORGE MACDONALD and FRASER STORY, of the excursion of the Society to Sweden in 1902. This trip seems to have been very succesful, the members returning much pleased with their reception, and with the information they were able to obtain. Much may always be learnt by paying professional visits to countries interested in kindred industries. The volume before us contains also other papers dealing with forestry; a subject that deserves every attention, if only because "trees take long to grow, but they are quickly felled."

"COUNTRY LIFE IN AMERICA."—The March number of this periodical conducted on the same lines as *Country Life*, is devoted solely to gardens and gardening. It is beautifully got up, and charmingly illustrated. It will have a special interest to many of our readers as containing an account of Prof. SARGENT's garden, near Boston. The estate comprises 150 acres situated in the very heart of a town (Brookline). The area is characterised by the great variety of trees and shrubs which enter into mass-effects by the stateliness of its venerable specimen trees, and most of all by the grandeur of its pastoral scenes. The trees and plants generally have been selected for their beauty, and specially their appropriateness, rather than for their botanical interest, though one may be sure that is not neglected. One solitary flower-bed gives colour near the house.

ROSE SHOW AND CONGRESS IN LANGERHAUSEN.—There will be held this year, at Langerhausen, from the middle of the month of July to the end of October, an exhibition of Roses in conjunction with a Congress of the German

Rose Amateurs Society. The rosary of the Society at that place is now completed, and is in every respect both instructive and worthy of inspection.

THE HATSTAND-TREE.—This name is given to a tree, Rheedia lateriflora, common in the woods of Trinidad and noted for its regularly branching character when small. It is often cut and placed in a heavy base as a hatstand. A small tree of 8 or 10 feet will often have as many as twenty or more branches of even size thrown out at regular and close intervals, at about an angle of 45° from the main stem. These when shortened down into a pyramidal form, and nicely trimmed and polished, serve exceedingly well for the purpose. If the main stem is further provided with rings about 20 inches from the base for umbrellas, and a draining trough fixed, it may be made still more useful. *Trinidad Bulletin.*

THE LATEST PUBLIC PARK IN LONDON.—Broomfield Park, Southgate, was declared on Saturday last open to the public for ever as a health resort, for the inhabitants of a district that is rapidly getting populated. There are three fine lakes in the grounds.

PUBLICATIONS RECEIVED.—Devon County Technical Education Committee: *Report on Manurial Trials during* 1901-2. The value of these experiments is proportionate to the time during which they can be carried on, and as the results are already satisfactory, it is wisely decided to continue these trials that the economy of various systems of manuring may be better demonstrated.—*Philosophical Transactions of the Royal Society*, vol. 193, pp. 1—27.—*The Seed-fungus of Lolium temulentum: The Darnel.* By E. M. Freeman.—*Die Periodicität morphologischer Erscheinungen bei den Pflanzen.* Von Tine Tammes (Amsterdam: Johannes Müller).—*Annales de l'Institut Central Ampelologique Royal Hongrois*, publiées sous la direction du Dr. Gy. de Istvanffi. Tome 2, 1903 (Budapest), publications du Ministre royal de l'Agriculture de Hongrie.—*Woman's Hardy Garden*, by Helena Rutherford Ely (Macmillan & Co.)—*Le Livre d'Or des Roses*, Paul Hariot (Paris: Lucien Laveur).—*Agricultural News*, a fortnightly Review of the Imperial Department of Agriculture for the West Indies, Barbados, March 28. Contents: The Cotton Industry, Sugar Industry, the Fruit Trade with Great Britain, &c.—From the same Department: *Sugar-cane Experiments in the Leeward Islands:* Report on experiments conducted at Antigua and St. Kitts for the season 1901-2. Part II. Manurial Experiments.—*The Transactions of the Yorkshire Naturalists' Union.* Part 29. Contents: Annual Reports and Lists of Members, Presidential Address, Reprints of Excursion Circulars.—*Pocket Edition of the Dingley Tariff Bill*, as passed by Congress, July 24, 1897, together with Schedule of Articles, revised to July 1, 1902; with Rate of Duty and Paragraph of Law. Compiled and edited by Wm. Rich; published by F. B. Vandegrift & Co., New York and Chicago. Important to all connected with trade between Great Britain and U.S.A.—*Bulletin of the Department of Agriculture, Kingston, Jamaica.* Edited by W. Fawcett. Contents: Cocoa in Trinidad and Grenada, Sugar-Cane Soils of Jamaica.—*The Handyman's Book.* This treats of tools, materials, and processes employed in carpentry, joinery, and cabinet work, with numerous illustrations and working drawings. Edited by Paul Hasluck. Cassell & Co.—*Our Poultry.* Parts 12 and 13. By Harrison Weir. London: Hutchinson & Co., Paternoster Row. Already frequently mentioned in our columns.—*Annual Report on Government Gardens and Parks in Mysore for the Year* 1901-2, with the Government Review thereon. "The designing and laying-out of the new Curzon Park at Mysore were carried out during the year with great success. The various grounds were properly maintained." Useful experiments were made with economic plants.—*The British Inventor:* A Journal for the Inventor, Scientist, and Trader. No. 1, April. This should prove useful to the large class to whom it appeals.

PLANT PORTRAITS.

APPLE, GRIS BRABANT.—*Bulletin d'Arboriculture, &c.*, April.

FRITILLARIA ASKABADENSIS.—*Revue Horticole*, April 16.

PHAIUS MARTHÆ ×.—A cross between P. Blumei and P. tuberculosus. *Revue de l'Horticulture, Belge*, April.

PRUNUS MUME VAR. ALBA PLENA.—A small flowered double white Plum from Japan. *Gartenflora*, t. 1513u.

PRUNUS SERRULATA.—A Japanese Plum with large semi-double white flowers. *Gartenflora*, t. 1513A.

ROSE, MME. EDMÉE METZ, H.T. (Soupert and Notting).—A cross between Caroline Testout and Ferdinand Jamin, pale rose.

TULIPA MICHELIANA AND T. WILSONIANA.—*Revue Horticole*, May 1.

CRINUM RHODANTHUM.

OF the three divisions or subgenera into which the eighty odd species of Crinum are divided, the first, Stenaster, containing about thirty species, is of least value to horticulture. The best known are C. asiaticum and C. defixum, both of them big coarse plants, suitable only for large tropical houses, such as the Palm House at Kew. Some of them are, however, very handsome; but hitherto they have proved difficult to cultivate. Such are C. leucophyllum, introduced from Damaraland to Kew by a Danish sea captain twenty years ago, which flowered once, and never again; C. Lastii, introduced from Zanzibar to Kew by Sir John Kirk in 1881, but it died before it flowered; C. crnentum, cultivated in Herbert's time, but not known to present-day gardeners. The last comer is C. rhodanthum, here shown (fig. 124). It was brought from N'gamiland by Mrs. Lugard and presented to Kew in 1899, where it flowered in a stove the year following; it is alive still, but is not flourishing. The bulb was as large as an ostrich-egg, and of the same shape, having scarcely any neck, the outer tunics dark brown and very brittle; leaves narrow, strap-shaped, glaucous green; peduncle flattened, a foot long, bearing a hemispheric umbel 2 feet in diameter, and suggestive of a huge head of Nerine flowers; each flower was about 6 inches long, the segments narrow and recurved, and coloured rosy-red; stamens red, anthers brown. Such a plant, if it could be grown as, for instance, Nerine Fothergilli is, and flowered annually, would be a valuable acquisition; but I fear it is not likely to be a lasting joy in the garden, whatever it may be on the hot plains of N'gamiland. I believe a bulb of it was presented by Mrs. Lugard to Mr. Chamberlain. *W. W., Kew.*

FIG. 124.—CRINUM RHODANTHUM. FROM N'GAMILAND.

FORTUNE'S DOUBLE YELLOW ROSE.

[SUPPLEMENTARY ILLUSTRATION.]

I was disappointed to read in the *Gardeners' Chronicle* of March 28, p. 196, that your correspondent, R. M. Dewar, looks upon the flowering of his plant of Fortune's Yellow Rose as hopeless. I am induced, therefore, to send a photographic view of a small house, the roof of which is covered with this Rose, taken on March 30, after reading Mr. Dewar's remarks, at which date about 1,000 Roses could be counted. We have (April 6) been cutting in quantity since the middle of the month of February last.

In each case here the roots are confined to inside borders. Mr. Dewar says his plant grows

splendidly, making shoots of 3 feet to 9 feet in length every year, and these are retained when the Rose is pruned; but he has omitted to state the season when pruning is performed. But the splendid growths made by Mr. Dewar's plant seem to me to indicate that the border is not the cause of his non-success in flowering it, providing the shoots are not too gross. They should be about the size of a common Cedar pencil, and short-jointed. I find these are the most floriferous.

It will be observed that the shoots in the photograph are much the same in length as those described, that is, from 6 to 9 feet; they are taken up, from the horizontally-trained leading shoots, which are from 20 to 30 feet in length. The upright shoots are arranged at 12 inches apart, upon each of which something like two dozen Roses are produced annually. When the flowers have all been cut, which is early in the month of April, each of these upright-growing shoots is cut back to the horizontal-trained leader, and the same number of shoots is again allowed to grow up, and these reach by the end of October a length of 6 to 10 feet, furnished with numerous side-shoots and many dormant buds. Now if I allow these side-shoots to remain, no flowers are produced. The plant, having an evergreen character, continues to make growth; but by cutting these shoots back to one bud, like a Vine grown on the spur method, a flowering-shoot is produced from each, the majority of which will have one flower, occasionally two, and even three. Mr. Dewar will perhaps observe that I prune the early Roses twice a year; and in a second house, the Rose is worked upon much the same principle as the Vine on the spur system, and in this house two annual prunings are the rule, after flowering, and before active growth commences early in the year. And the latest Roses which are in flower during part of April and May, are closely pruned after flowering, and the weak shoots are simply thinned after growth has come to an end. If by such treatment as that I have here described, Mr. Dewar's plant should take to flowering, no one would be more pleased than myself. The plants beneath the Roses consist of Orchids, Hippeastrums, Azalea mollis, &c. *Wm. Fyfe, gr., Lockinge, Wantage.*

HOME CORRESPONDENCE.

AN ANCIENT TREE RUIN.—There is in the Hampton Court Home Park, and not far from the Palace Gardens, a remarkable veteran now in the last stage of decay. It has a trunk that is perfectly hollow within, but externally it is from 3 to 4 feet from the ground some 32 feet in circumference. I notice that on one side, the shell of the trunk has split to the bottom. Should a similar mishap occur on the other side, the huge stem must divide and both portions fall to the ground. That would be a calamity, for this fine old ruin is well worth preserving. I would like to see the authorities chaining the two main branches together, and if need be fixing props to sustain them in position. Then the tree should be surrounded by a light iron fence so as to protect it from cattle or the depredations of hooligans. It is very probable that this ruin is that of a once noble monarch of the Park, and may have seen the Norman Conquest. *A. D.*

ODONTOGLOSSUM ARDENTISSIMUM.—I understand that Mr. C. Vuylsteke has exhibited another plant of Odontoglossum ardentissimum out of the same seed-pod as mine. It will therefore be right that the plant which received a First-class Certificate at the Temple Show last year should be known in future as Warburton's variety of O. ardentissimum. *T. Bailey, gr., Vine House, Haslingden, Manchester.*

BUNCH PRIMROSES. — Your correspondent "Old Kewite" may consider himself fortunate in having a soil in which divided Primroses will succeed so well, and in his particular case he is probably wise in practising this method of propagation. A wide experience, however, with a variety of soils, in some of which Primroses that have flowered more than once can hardly exist, has convinced me that for general use seedlings are the best, and it was with such soils in my mind that my note was penned. Mr. Divers, of Belvoir Castle, who grows these bunch Primroses by the thousand, and whose spring gardening is noted, told me some years ago that he could not possibly rely on division, and that he gets his stock of plants from seed. The same thing is the experience of many gardeners in the Midlands. I have myself kept for many years selections of the best forms of seedlings, but cannot rely on them for effective planting. As regards being sure of the "colour one is after," in the case of the yellow and white flowered varieties, this is certainly assured when a good strain of seed is sown, as any abnormality is readily detected before the plants are put into the position in which they are to flower. There is one paragraph in "Old Kewite's" note that, considering how well these plants thrive with him, puzzles me. It is that in which he says that "two years are required to make the plants fit to look at." The standard of fitness must be high, unless the cultural standard is low. Two years is a long time to have to wait for a Primrose. *J. C. Tallack., Derby.*

SEEDLINGS FROM CAMPANULA BARRELLIERI, ETC.—The summer of 1901 having been a hot, dry one, I noticed that on plants of such basket Campanulas as C. isophylla, isophylla alba, and Barrellieri, what appeared to be a tendency on the part of some of them to be plump with seeds, and when I thought them sufficiently ripe, I gathered them, and carefully placed the capsules in bags. They were quite overlooked until the spring of this year, when the seeds were rubbed out, and there remained what appeared to be a quantity of fine dust. The supposed seeds of each sort were kept separately, and sown in March, and, to my surprise, a very large number of seedlings have come from each, and especially from Barrellieri, which have the most robust growth; seedlings of isophylla are numerous also, but were later in appearing than the first-named; isophylla alba produced the fewest, and germination was somewhat later. I have had the seedlings pricked off into little clumps; later on, they will be again pricked off into a prepared bed in a cold frame, where I hope eventually to bloom them. Is it not unusual for these plants to produce seeds? They were growing in a greenhouse side by side; bees had ready access to the blossoms, and perhaps helped to fertilise them. I shall anticipate with much interest the blooming of the seedlings. *R. Dean, Ealing.*

OLD BOOTS IN VINE-BORDERS.—Since my note on this subject appeared, I have received an interesting letter from a correspondent, who states that the Messrs. Rochford, of Turnford Hall Nurseries, employ a great quantity of leather trimmings, derived from boot manufacturers, when making Vine-borders. Leather used as an ingredient in compost for the Vine is fresh information to me; doubtless, however, it is a more or less useful phosphatic manure. But if this is the case, how does it become assimilated in the form of boots, or even trimmings? would it not be of greater value if ground before being used? However, the Messrs. Rochford are not the kind of cultivators who are likely to use any material without having good reasons for doing so; and perhaps someone will be kind enough to give the readers of the *Gardeners' Chronicle* the correct value of leather as a manure for the Grape-Vine. *Thos. Coomber, The Hendre Gardens.*

CACTI IN SEALED CASES.—In the report of the botanical section of the Ghent Quinquennial Exhibition in the *Gardeners' Chronicle* for May 2, 1903, p. 285, mention is made of "une culture facile" of Cacti in sealed cases. We have an example here in which a plant of Echinopsis minuscula, Web., has been corked and sealed in a small bottle since July 26, 1900. The bottle has been suspended in one of our Cactus-houses, exposed to the full sunlight since that date, and the plant is, so far, none the worse for its close confinement. When placed in the bottle, it was only ⅛ of an inch in diameter, it is now about 1¼ inch, at which size it usually flowers. Last week I noticed a bud at the base of the plant, but it has since, unfortunately, withered up. I had hoped to have observed whether the flower reached its full development and produced seed, as I have never heard of a plant flowering under those conditions. Those who care to try the experiment of growing plants in sealed bottles will find the Cacti the most suitable, owing to their peculiar form and slowness of growth. Either small offsets or seeds may be employed. Care must be taken to sterilise both the soil and the water used, or mosses or fungi may spring up and obscure the plant. The soil should consist of equal parts of loam and leaf-mould, with a small quantity of sand. If bottles are used, the soil should be dry when placed in them, and sufficient of the sterilised water added afterwards to make it moderately moist. The plant or seed can be placed firmly in position by means of a piece of stick. The bottle may then be corked and sealed up with ordinary sealing-wax, and placed in full sunlight in the greenhouse, the drawing-room, or outside in the open air during summer. *A. Cobbold, Manchester.*

BROWNING'S PLANT.—In reply to "W. T.," p. 287, I think the plant referred to by Browning in "May and Death," in the lines quoted, must be Orchis maculata, which flowers in May, is generally found in woods, and the colour of its flowers approaches that of venous blood more closely than that of any wild flower that I am acquainted with. *W. H. Divers.*

SEEDING OF THE DOUBLE WALLFLOWER.—The note on the above from the pen of Herr Roemer, see p. 299, probably referred to the true double Wallflowers, of which we have four varieties in England, viz., the tall yellow; the dwarf yellow distributed a few years ago by the late Miss Hope, of Wardie Lodge, and named Harpur Crewe; the dark brown self-coloured variety, which is now very rare; and another inferior brown which has yellow stripes in the flower. These are true doubles, and do not produce seed, whether grown under glass or in the open air; possibly they are not known in Germany, as I cannot think they would produce seed there any more than they would do so here. We also grow the "German Doubles" here, which contain many very beautiful varieties, and occasionally produce seed here in favourable seasons; but my experience in raising them from home-saved seed is that they are not satisfactory, most of the plants producing single flowers, and I always depend upon German seeds for raising plants for seeding purposes. A bed now in flower at Belvoir is exceptionally good, and every plant has double flowers, so called, but really only semi-double, because they have the pistils perfect and they do produce seeds. These German Doubles do not produce side-shoots suitable for cuttings as our own old-fashioned double Wallflowers do. *W. H. Divers, gr., Belvoir Castle, Grantham.*

RAINFALL AT ISLEWORTH.—During the nine days, April 26 to May 4 inclusive, it rained here during a large part of eight days, and continuously upon three of them. At no time was the rainfall heavy. During the period 2·51 in. fell, and we have had heavy showers since. It is rather remarkable that just at this season, for three successive years, we have had long-continued falls of light rain—

	Fall.
1901.—7 consecutive wet days, ending April 16	1·38 in.
1902.—6 ,, ,, ,, ,,	May 12	0·83 in.
1903.—8 wet days out of 9 ,, ,,	May 4	2·51 in.

The value of such rains at this particular period of the year cannot be over-estimated. In confirmation of my estimate of losses caused by the great Polar blast of last month, which I reported as having destroyed the stone-fruit crops, I regret to say that the Pear crop has practically shared the same fate. Some of the hardiest carry a few scattered fruit, that is all. *A. Worsley.*

PRESSURE EXERTED BY MUSHROOMS.—A few weeks ago some half-hardy annuals were sown in a pit cleared of winter Violets, and the lights kept closed to hasten germination. In a few days signs of cracking in the brickwork at the back of the frame was observed, and gradually a block weighing in the aggregate 1½ cwt. was pushed out of position; after cutting out several bricks,

I found a mass of Mushrooms, 3 lbs. 3 ozs. in weight, growing in the centre of the wall. The mycelium had run freely in the mortar, and on the face of the bricks in the wall, and was as thick as whipcord. I have since gathered several large clusters in the frame. Where they heaved up the soil close to the wall, twenty-two Mushrooms formed one cluster cut to-day, May 7. *Mark Webster, gr., Kelsey Park, Beckenham.*

PHARMACY ACTS AMENDMENT BILL.

THERE are certain aspects of this measure which are open to criticism by those who honestly differ from its provisions, and I shall be greatly obliged if you will enable me to briefly refer to them through the medium of your paper.

The Second Clause, which makes provision for the regulation of the sale of poisons, is evidently directed against any and every Firm and Company except individual Registered Chemists and Druggists. I fail to see why the restriction upon "any Company, Firm, Co-partnership, or body of persons," should be so stringent as they are intended to be, or why an already existing monopoly should be strengthened in the way suggested. It is seriously proposed to make it unlawful for any Person, Company, Firm, Co-partnership, or body of Persons, to sell or to "negotiate" or "participate in the sale by retail of any poisons at or upon any place other than an open Shop Registered." Is a traveller or other agent to be forbidden negotiating an order for Paint, Sheep Dip, Weed Killer, or Insecticide from an Agriculturist or Nurseryman? Surely that would be an unwarrantable interference with the liberty of the subject which the Legislature will decline to sanction. The well known case of the Pharmaceutical Society *v.* White at once occurs to one in this connection. White, a Nurseryman and Seedsman, received an order at his shop for Weed-killer, which he transmitted to a manufacturer, who supplied the customer direct, White receiving a commission for forwarding the order. The Court of Appeal affirmed that White was the agent or "pipe" or "channel" through whom the order was sent. Surely that is common sense; and it would be against the trend of modern legislation to endeavour to prevent such a transaction being perfectly legal or that persons who take orders in the same way as White should be deprived of their commission.

Then, again, the powers proposed to be conferred upon the Pharmaceutical Council, as regards the regulations to be made for the registration of Shops and Persons are such as would be more properly discharged by a public department, than by officials of a body that would naturally be prejudiced in a certain direction. Grave injustice might probably be done to individuals by the removal of their names from the Register, under Regulations which, by the Bill, it is intended to leave in the hands of such Council.

Clause 5 proposes to make it compulsory for all Shops or Buildings which are Registered to be separately rated to the poor. This seems quite superfluous. What sanctity attaches to the Poor Rate assessment it is impossible to conceive. Surely it has no connection with the sale of Poison or Medicine! As everybody knows, it has been quite a common occurrence in recent years for Palatial Hotels, Coffee Taverns, and Theatres, to be erected, the lower rooms of which adjacent to the streets are let out separately as shops. The usual practice is for the entire building to be assessed to the Poor Rate, and for the shop rental to be independent of rates. Why disturb the existing state of things? Registration should suffice. In the case of the Army and Navy or Civil Service Stores, where the Chemists' Department is only part of one particular floor, it would be most difficult, if not well-nigh impossible, to fairly estimate what the assessment should be for so many square yards of floor space.

Clause 7 seems unreasonable and unjust. It would really require that Directors of Stores in which there is a Chemists' Department should themselves be qualified Chemists! although such Department be under the superintendence of a Registered Chemist and Druggist. Of what possible benefit could it be to the public—what extra protection would they receive—should such a provision become law? Is a Director, forsooth, to test the strength and quality of all the drugs which the Company sends out, as a qualification for holding office? Hitherto the possession of business capacity and a substantial holding of shares have been considered the necessary qualifications; but if this newly-invented one is to be insisted upon, the range of choice for such Directors of such Stores will be greatly restricted—for no sound reason whatever.

It would be obviously unfair for Directors to be limited in the manner proposed. It might as well be argued that those who guide the destinies of Life Assurance Societies should be medical experts or skilled actuaries; or that those who control breweries should be trained judges of malt or hops. From the point of view of quality of medicine or kind of poison dispensed, the public do not care two straws who the Directors of a Company are. If they are served and provided for medicinally by a duly qualified Chemist, restrictions upon Directors will not give greater protection than they now possess. If a whole Board of Directors were to be registered as Chemists, and their Registered Dispenser sold some poisonous compound to an individual, through whose carelessness or design such compound brought about a fatality, what possible connection could such Directors have with so unfortunate a result? Mr. Bailey, M.P., may well describe Clause 7 as a "very unreasonable condition." He might have added "absurd."

To conclude, the restrictive nature of several of the provisions of this Bill is such as to make it highly probable that it will meet with strong opposition on the part of all those who, while desirous of fully protecting the public, decline to continue, much less extend, the monopoly already possessed by Chemists. A Privy Council Departmental Committee has already reported in favour of breaking down the monopoly and legalising the sale of poisonous compounds under proper restrictions by others than qualified Chemists, where they are required for use in connection with Agriculture, Horticulture, or Sanitation; such Poisonous Compounds to be sold only by licensed persons, in sealed packages, as received from the Manufacturers, properly labelled, and subject to the regulations to be made by the Privy Council.

The object of the Pharmaceutical Society in promoting this Bill is only for the benefit of Chemists and Druggists. This is shown by the reports of meetings of Chemists held in all parts of the country.

The Legislature should act, not in the interests of individuals, but for the convenience and benefit of the public. The day has gone by when monopolies can be maintained. *Thos. G. Dobbs, Sec. and Solicitor to Traders in Poisonous Compounds for Trade Purposes Protection Society.*

BOOK NOTICE.

THE SOIL.*

AN excellent and up-to-date text-book on the study of the soil has issued from the pen of Mr. A. D. Hall, M.A, the Director of the Rothamsted Station (Lawes Agricultural Trust).

The book is capitally got up, and consists of 286 pages, divided into ten chapters with appendices. There are some good illustrations, and a well-arranged index.

The book, as stated, is primarily intended for the students of our agricultural colleges and schools, and for the cultivator of the soil who wishes to know something about the materials he is handling day by day.

Much of the information, as one would naturally expect, has been drawn from the invaluable researches that have been carried on so thoroughly at Rothamsted during the past half century by the late Lawes and Gilbert.

The whole business of agriculturists, and for that matter of horticulturists also, is founded upon the soil; it is for this that rent is paid, and upon the skill of the cultivator in making use of its inherent capacities depends the return he gets for his crops. Of course, it is recognised that rent is not wholly determined by the nature of the soil, but depends also on the proximity of a market, and the adaptability of the land to special purposes; a light sandy or gravelly soil, almost worthless for general agricultural purposes, may be valuable in the neighbourhood of a large town, because its earliness and responsiveness to manure make it specially suitable for market gardening.

At first sight, nothing would seem easier than to make a chemical analysis of a soil and find out in what respects it differs from another soil of known value, then the deficiencies or the excesses as compared with the good soil could be corrected by suitable manuring. The matter is not, however, quite so simple as it appears, and the subject has been fully explained in the work before us, for if on the one hand the soil can be considered as a great reservoir of plant-food which can be recovered in crops, on the other hand it is equally correct to regard the soil as a manufactory, a medium for transforming raw material in the shape of manure into the finished article—the crops.

The complete knowledge of the soil and the part it plays in the nutrition of the plants requires investigation along three lines, which may be roughly classed as—chemical, physical, or mechanical and biological. It is exactly these with which the author deals, and although it is in no sense an exhaustive treatise, a general outline has been given of all the recent investigations which have opened up so many soil problems and thrown new light on difficulties that are experienced in practice.

The full story of the soil cannot yet be told; small wonder that in the course of the many centuries man has been cultivating the face of the earth, he has found out much which science can barely explain, still less improve upon.

Nor are the problems simple—the food, the water, the temperature, the living organisms in the soil, are all variable, and affected by cultivation and climate, also variable factors. They all act and react upon one another, and upon the crops; hence we can easily understand that the smallest farm or horticultural establishment may present problems beyond the furthest stretch of our knowledge.

We heartily commend the volume to our readers, who will be amply repaid by a careful perusal of its contents.

* *The Soil.* London: John Murray, Albemarle Street. Price 3*s.* 6*d.*

KEW NOTES.

IN the No. 1 house, close to the entrance from Kew Green, the superb Amherstia nobilis is now in bloom. It has a tall stem, some 20 feet high, bearing a canopy of bold pinnate leaves, from among which descend numerous large panicles of brilliantly-coloured orange-pink flowers. The bracts are as vivid in colour as the flowers, and as they fall they sprinkle the floor as with flakes of rose-coloured snow. At Chatsworth a former Duke of Devonshire erected a house on purpose to contain this magnificent plant. Its structure is as curious as its coloration is splendid; but we suspect if it were shown before the Floral Committee it would receive scant attention, for it is of little use for "cut flowers," or as a market plant.

The Orchid-houses just now are very attractive. Among the more prominent species in flower are Cœlogyne Dayana, Epidendrum ciliare, Ansellia africana, Cattleya Mossiæ, Cymbidium Lowianum, Saccolabium gemmatum, a botanical Orchid, with slender, cylindric, curved leaves, and spikes of lilac and white flowers, calling to mind the same combination of colours in various Statices; then there are Vanda teres, Miltonia vexillaria, Cattleya citrina, head downwards, as usual; Cypripedium bellatulum, Rothschildianum, Sanderianum, and many others; and among the terrestrial species, Satyrium carneum and coriifolium, with an orange-coloured helmet. But the greatest novelties are the three species of Chloræa, brought from Chile by Mr. Elwes: C. virescens throws up a spike of flowers whose segments are yellow with green veins, the front of the lip is tongue-shaped, and studded with small, thread-like processes; C. multiflora has the flowers about 1¼ in. in diameter, with white segments tipped with green. The finest of the three is C. crispa, which has flowers over 2 inches in diameter, with white segments, the sepals lanceolate, the petals oblong, forming a hood over the column. The lip is tongue-shaped, with very narrow, strap-shaped processes springing from its surface. All three have basal leaves, broad at the base, tapering gradually to the point, and greenish in colour, overlaid with milky-white; the flower-spike is in all cases erect, 10 to 14 inches high, with small, narrow, leafy bracts, and many-flowered. The species are natives of Chile, and are more fully described in the current number of the *Orchid Review*. We understand that some or all have been drawn for the *Botanical Magazine*.

Antigonon leptopus is in bloom in the Nepenthes-house; its flowers are of a delightful

shade of rose-pink. The well-known Clerodendron Thomsonæ is particularly showy with its profusion of white calyces. Wormea Burbidgei is one of those plants we never see out of a botanic garden, but its noble foliage and large, cup-like yellow flowers merit a place in any house.

No. 4 house as usual, is full of flower, the show being made principally by Azaleas, Cinerarias, Cannas, Hippeastrums, Coleus thyrsoideus, Viburnum plicatum, Lilium longiflorum, the Giant Buttercup (Ranunculus cortusæfolius), and a host of others.

In the alpine-house, amid a myriad of interesting things are Corydalis thalictroides, with yellow flowers; C. tomentella, one of Messrs. Veitch's introductions from China, which has much cut leaves, with rounded segments, covered with grey down and spikes of yellow flowers; this will form a most attractive plant when better known. Achillea Huteri is a fine rock plant, with finely-divided grey foliage, and brilliant white flower-heads; Dianthus Freynii is an interesting dwarf species, with narrow green leaves and white flowers; Celmisia Munroi is a charming New Zealander, with large, circular white flower-heads—but it would take many columns of the *Gardeners' Chronicle* to enumerate the treasures now to be seen on the rockery and in the alpine-house.

Just because it would be passed over by the ordinary gardener, we must mention the singular Buphane disticha, which exactly resembles a Spanish Onion with a large green fan at the top.

The Economic-house, which is generally dull in colour is now enlivened by the beautiful colours presented by the young leaves of Cinnamomum zeylanicum, which are pale yellowish-green in the centre, edged with a lovely tint of rose-pink.

Out-of-doors it is an intermediate time, the early spring flowers are mostly over, but a bed of Golden Tom Thumb Wallflower, besprinkled with a scarlet Tulip, is still very effective. Some other experiments of mixed spring bedding are not quite so successful. Happy the plant-lover who can visit Kew. Go when he may the garden is full of delights, and its interest never flags.

THE FLOWERS OF MAY.

Since last I wrote to the *Gardeners' Chronicle* there has been a complete transfiguration of the aspect of Nature, owing to what may be termed, not without exaggeration, an atmospheric revolution. The gracious rains, so long and anxiously expected, have at last appeared, "dropping," like Shakespeare's mercy as described by Portia, "upon the place beneath." The cruel, insidious frosts have disappeared; we have less of sunlight (often withering in its influence because of its accompaniments), and more of gently freshening and fertilising rain—the latter, indeed, we have had in great abundance, but I presume that during the growing season of early summer we can hardly have too much. With two solitary exceptions, there is at present a great profusion of bloom on the flowering trees. But the Almond and the Japanese Crab (Pyrus Malus floribunda), which were exquisitely beautiful at this period last year, are striking exceptions to the general rule. I can only presume that, as oriental trees, they require a greater ripening of their wood than they have received during the last twelve months. Plums and Cherries seem to be much less exacting, otherwise harmonizing more perfectly with our variable climate, they flower with considerably greater facility; in any case, considering their crucial experiences during last summer, almost the coldest on record, they have blossomed most surprisingly. The Early Rivers, Victoria, and Czar Plums, are far more luxuriant, at least in this vicinity, than they were last season, and as, unlike those in the South of England, they have not come into flower too early, they will have no difficulty in setting their fruit. The Early Rivers, Black Eagle, and Morello Cherries, also that hardy and free-flowering variety entitled the May Duke, have quite a splendid display of fragrant bloom. I may remark parenthetically, that the Early Rivers' Cherry which I have seen quite superb at Sawbridgeworth, its native place, especially under glass, is much too delicate for our Scottish clime. It blossoms with great facility, but seldom goes further; it seems to have much difficulty in forming its fruit. The May Duke succeeds infinitely better; and the supremely beautiful Morello, whose acid flavour is by no means objectionable when the fruit has been thoroughly ripened, is almost invariably a gratifying success. I hope the Black Eagle is, in other parts of Scotland, somewhat more reliable than I have found it here. But, on the other hand, it is grandly ornamental in our gardens on the confines of May.

The earliest of my Apples is the beautiful Irish Peach, which is already (May 3) in radiant bloom. Almost equally advanced in its floral development is the Early Crawford Pear, which, with Scottish cultivators is a universal favourite; of which I can testify that it seldom fails to succeed, even under the most trying atmospheric conditions. I wish I could say as much, with perfect truthfulness, of Pitmaston Duchess, or Doyenné du Comice!

Those flowering trees whose beauty I have attempted to delineate, but which I can only faintly suggest, have a most artistic environment of varied leaves and brilliant flowers in this gracious month of May. Conspicuous among those glories of the garden, "with odours rapt from remote Paradise"—as Tennyson sings—are the Auricula, that lovely late Daffodil, Bicolor of Haworth; and the charmingly-formed and delicately fragrant Narcissus poeticus. July, with all its Roses, and subtle Woodbine spices, wafted through the coolness of slumberous summer evenings, is not so inspiring as this Sunrise of the Year. *David R. Williamson.*

[Since the above was written, the cruel frosts have ruined the Cherry and Plum crops in many parts of the country, and Apples and Pears have been severely thinned. Ed.]

Obituary.

François Crepin.—The echoes of the great Quinquennial Exhibition in Belgium have not died away before we receive intelligence of the death of Belgium's representative botanist. It is only a short time since Crepin resigned his post as Director of the Botanic Garden at Brussels, on the grounds of ill-health. For a time he improved, and it was hoped that he might complete, or at least put into shape, the labours of a lifetime.

Crepin was born at Rochefort in 1830, and died at Brussels on April 30 last. We have no information as to his early career, but we first knew of him in association with horticulture when he held the post of Professor in the State School of Horticulture, then located in the world-famous establishment of Louis van Houtte. He was an ardent field-botanist, and delighted in sharing with others what we may fairly call "the pleasures of the chase." These herborising excursions provided materials for his *Manuel de la Flore de Belgique*, first published in 1860, and which has run through several editions, being still the best general flora of the country. It was to his zeal and his energy that the Royal Botanical Society of Belgium owed its foundation in 1862. With unremitting zeal he directed its course as Secretary till his retirement, when, for the first time, he accepted the higher but less onerous office of Honorary President.

It was not only living plants that attracted his attention, but fossil ones also, so that not only did he become an authority on the existing flora of Belgium and its distribution according to present circumstances, but also on the plants of byegone eras living under very different conditions, from the Cambrian to the Eocene. His publications were very numerous, some intended for students and novices, others setting forth the results of original research and study. His *Guide du Botaniste en Belgique* is a delightful little book, reminding one in some degree of Alphonse de Candolle's *Phytographie*, but more especially devoted to the interests of beginners and amateurs. It indicates the means which a student should take to become acquainted with the several departments of botany, comprising even the collection and preservation of fossil plants, and giving in concise form a history of the literature of botany and horticulture in Belgium from the 16th century to the present time.

But all these publications, valuable as they are, have a comparatively restricted interest. They are chiefly Belgian. With his numerous publications relating to the genus Rosa, it is otherwise. For many years he had devoted all his available time to the collection and the comparative study of the species of Rose from all countries. His researches were numerous, painstaking, and exhaustive. It is a question indeed whether he was not overweighted with his own material, and his generalisations hampered by excess of detail. At any rate, although he occasionally contributed a *travail d'ensemble*, such as his *Primitiæ Monographiæ Rosarum*, and various articles on the classification of Roses in our own columns, in the *Journal of the Royal Horticultural Society*, and elsewhere, we yet looked forward to the time when he would be able to give us a completed monograph, embodying and co-ordinating the results of his long continued study. This, we fear, can no longer be looked for, though, no doubt his enormous collection of materials and notes will eventually be available. Under his directorate, the garden, the herbarium, and the museums at Brussels assumed great importance, and those whose privilege it was to be brought into contact with the director will lament the loss of a distinguished man of science, and of a helpful, sympathetic friend.

Donald McBean.—We regret to learn of the death of Donald McBean, late gardener to J. C. Cunningham, Esq., Craigends, Renfrew, N.B., after an illness of eight months' duration at the age of sixty years. The deceased had been with J. C. Cunningham, Esq., as gardener, for a period of thirty-two years, and during that period he had been well known as a successful competitor at the Glasgow and West of Scotland, Scottish Horticultural Society's, and International shows; while as a judge at shows he has traversed the greater part of Scotland and part of Ireland. He perhaps excelled as an exhibitor of fruit and vegetables, more particularly the latter; and when in 1895 at the Glasgow Autumn Show he won the Veitch Memorial Medal for a collection of vegetables, the *Scotsman* said, "Among vegetable growers he is considered the prince." He also was known as an exhibitor of Dahlias and Hyacinths. Of late years he had given up exhibiting vegetables in exchange for fruit. He was Director of the Glasgow and West of Scotland Horticultural Society, and the Scottish Horticultural Society for a long period of time, and held these posts till his death.

A White Canna.—As a supplement to the *Florists' Exchange*, an illustration (we were about to say a coloured illustration!) of a pure white Canna is given. The variety is that known under the name of Mont Blanc, and was raised in the establishment of Dingle & Conard, West Grove, Pennsylvania.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

May 5.—*Present:* Dr. M. T. Masters, F.R.S., in the chair; Messrs. Bowles, Odell, Hooper, and Saunders; Drs. Cooke and Rendle; Revs. W. Wilks and G. Henslow (Hon. Sec.).

Aconite and Caterpillars.—Mr. Holmes reported upon the specimens sent to the last meeting as follows:—"The moth that attacks the Aconite flowers when in bud is Plusia moneta, one of the Noctuæ. The grub appears about the middle of April, and its presence is recognised by the young leaves above the bud being fastened together, and later on by the black tips of the young leaves, where they have been eaten. A few years ago it first appeared in this country, feeding both on the Aconite and Delphinium, when high prices (from 5*s.* upwards) were paid for British specimens. Now it is so common around London that I found nearly a dozen in the Chelsea Physic Garden; and an acquaintance collected during a cycle ride in the neighbourhood of London last week as many as 500 larvæ, so that it is spreading rapidly. The furthest point north that I have seen it is Robin Hood's Bay, in Yorkshire. The single specimen seen there was attacked by ichneumons, which I gave, when hatched out, to the Zoological Department of the Natural History Museum, South Kensington. The eggs are laid on the fruit of the Aconite singly, here and there, and the young caterpillar apparently eats its eggshell, as so many caterpillars do; but I was not able to trace them, and do not know what they feed on in the autumn, when the Aconite is withered, since the moths come out in June, and I have never found an autumn brood."

Fuchsia Malformed.—Mr. Holmes sent a photograph of a blossom having two stamens, with filaments outside the base of the flower. It was received from Mr. W. H. Hammond, of Canterbury. Mr. Holmes observes:—"It is difficult to understand the position of the stamens, unless the leaves, which are alternate, are considered as the sepals of the flower, the carpels of which may be developed into a second flower by a prolongation of the axis."

Tulostoma mammosum.—He also showed specimens of this little "stalked puffball," and observes:—"The stalk is usually hidden by the moss and herbage amongst which it grows. I found it at Braunton Burrows, N. Devon, during Easter. It was growing scattered over a space of several yards on a rabbit-warren, and the rabbits' dung being bleached, presented almost exactly the same appearance. Indeed, I should have passed the fungus by, except that each seemed to have a dark spot in the centre (where the spores escape). One can hardly see the use to such a rare plant of protective mimicry; but the likeness was most remarkable in size, colour, and shape."

Acer van Volxemi frost bitten.—Dr. Masters showed sprays of this tree from the Caucasus, severely cut by frost. The leaves were dead, but the shoot was uninjured. It was the first time that this species has been known to be cut. The specimen was shown to illustrate the way in which the general appearance or habit of the shoots may be affected by frost. The shoots, though still alive, will be bare of leaves at the base all through the year. Japanese Maples were severely injured a few weeks ago near Bury St. Edmunds.

SCOTTISH HORTICULTURAL.

April 25.—The members of the Scottish Horticultural Association, numbering forty, had a pleasant and profitable afternoon's outing to Dalhousie Castle on the invitation of C. W. Cowan, Esq. The collection of Daffodils numbering 236 in all sections, from Minimus to Maximus, was much admired. Amongst the new and rare sorts I noted Brigadier, White Queen, Lady Margaret Boscawen, Dorothy Kingsmill, King Alfred, Gold Cup, Torch, Lucifer, Flambeau, Stronghow, Lord Roberts, and Hodsock's Pride; some of the older large trumpet varieties, such as Madame de Graaff, Weardale Perfection, Monarch, Madame Plemp, are still hard to beat. Duchess of Westminster is the best of the Leedsii section. Mr. Cowan has also formed a fine and choice collection of hardy herbaceous plants, including many of Mr. Kelway's scented Pæonies. A new feature in the garden is a pergola, near to the fine old Holly hedge by the bank of the Esk, on which are planted climbing Roses and Clematis in great variety, also Vitis and Wistaria, which will afford a charming effect.

The glasshouses were also visited, and some fine plants of greenhouse Rhododendrons in bloom were noted, among them were Henryanum, Countess of Haddington, Fragrantissimum, and a number of other small flowered hybrids. Carnations are well grown in pots.

The Rose-house is just at its best, and here was remarked a particularly fine Maréchal Niel Rose growing on the roof. Other fine Roses were Maman Cochet, White Maman Cochet, Climbing Niphetos, Sunrise, Liberty, climbing Mrs. W. J. Grant, Lady Roberts, &c.

The Vines and Peaches and the orchard-house trees, all went to prove that everything was done to secure success by Mr. Cowan, who is ably assisted by Mr. Wm. Pirie as head gardener. *J. W. McHattie, Edinburgh.*

On May 5, by invitation of the Committee, Mr. Richard Dean, V.M.H., delivered a lecture in Edinburgh before the members of the above Society, on "Floriculture and Florists, during the past Fifty Years." Mr. John W. McHattie, the city gardener, President of the Association, was in the chair, and there was a good attendance despite the bad weather. By way of preface the lecturer said his intention was to tell them something about the men who lived and worked during the latter half of the past century, and what they did. From 1825 to 1880, he regarded as the golden age of Floriculture, and the activity shown in the cultivation and improvement of florist's flowers during the first twenty-five years of that period gave rise to the establishment of various monthly periodicals devoted to Floriculture, such as the *Dahlia Register*, *Horticultural Journal*, *Floriculturol Cabinet*, *Florist*, *Midland Florist*, *Gossip of the Garden*, &c., and the careers of the Editors and leading contributors of some were sketched. Allusion was made to the establishment of the National Floricultural Society in 1831 by the leading florists of the kingdom, the object being to set up a competent tribunal to which could be submitted new florists' flowers, then being so abundantly produced. Of the 207 original members of that society, it was said that Mr. William Paul, Waltham Cross, is the sole survivor. The Scotch floricultural publications were also mentioned, the *Scottish Gardener*, afterwards the *Gardener*, and the *West of Scotland Horticultural Magazine*, and some of their principal contributors, passed in review. Then followed a list of the leading florists' flowers cultivated in the '50's and '60's, and the doings of the principal raisers detailed; many interesting personal reminiscences were given in this part of Mr. Dean's address. The names of eight flowers were mentioned as having been epoch-making, the Fancy Pansy, Gladiolus, Hippeastrum pardinum, the Japanese Chrysanthemum, the Clematis, Dahlia Juarezi, Begonia boliviensis and its allies, and the Sweet Pea. An impressive estimate of the dead-and-gone florists and their work, brought the lecture to a close, and an interesting discussion followed, in which Messrs. James Grieve R. Laird, M. Todd, W. Cuthbertson, and others took part. At the close a hearty vote of thanks was passed to Mr. Dean, and on the motion of the President, carried by acclamation, the Lecturer was elected a honorary life member of the Association. A vote of thanks to the President terminated the proceedings.

CROYDON & DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

May 5.—On Tuesday, the members of this Society held their usual fortnightly meeting at the Sunflower Temperance Hotel, George Street, and were well entertained with a capital lecture on "Sweet Peas," contributed by Mr. H. J. Jones, Ryecroft Nurseries, Lewisham, a practical and well-known exponent.

Mr. Jones, in opening his subject, paid due attention to the preparation of the ground, which should be commenced in the autumn by trenching and affording a quantity of well-rotted manure, with the addition of some bone meal, leaving the top spit in ridges for the frost and air to pulverise. Seed sowing should be commenced in February, and with the average season these would flower about the middle of June. As soon as the seedlings appeared above the ground, put in small twigs along the rows or clumps, and afterwards add the taller sticks, 5 feet to 6 feet in height, as growth increases in height. For a top-dressing he advocated a mixture of bone meal and Peruvian guano mixed together, and applied at the rate of 14 lb. to one bushel of dry soil, which should be well watered in. At all times when applying water, afford it copiously. When the plants commenced to bloom he found it very beneficial to pinch out the point of the leader of the plant, so that all nutriment went into the flowering lateral and shoots. For a continuation of bloom care should be taken to remove all seed pods as soon as they appear, and another useful hint was when the plants are beginning to give out and have become almost spent, to cut them back to about 2 feet above the ground, withholding liquid-manure for about a week or two, and so resting them. Afterwards apply manure-water, and the result will be they will break forth into new growth and so continue till cut off by frost. For pot-culture he recommended using a rich loamy compost, and to sow five seeds in a 5-inch pot, pinch out the leaders when the third pair of leaves were formed, and plant into 7-inch or 8-inch pots, and place sticks in these for the plants to climb. When the pots are filled with roots apply liquid-manure, but note should be taken that excessive water to plants in pots is detrimental to them. The leaders could be stopped several times, so as to form bushy plants, and, as in the open-ground treatment, all seed-pods should be removed as they appear; so also the cutting-back method can be adopted. Peas can also be raised from cuttings grown in a frame with a little bottom-heat. The practice of hybridisation he thoroughly explained, and disproved the idea that fertilising by bees and insects was possible, owing to the very early stages in the bud when this practice must take place.

A good discussion by the members followed the lecture, and the questions asked were ably replied to by Mr. Jones.

The next paper will be on May 19, when Mr. W. Durney will take for his subject "Popular Horticulture."

BATH AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

There has been established in Bath, a Bath and District Gardeners' Association, Mr. R. W. Rogerson, 13, Northgate Street, Bath, as Hon. Sec. Three successful meetings have been held, and original papers read, which have instigated useful discussions.

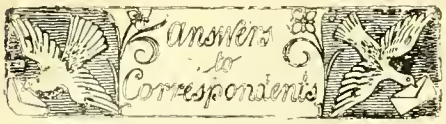
The monthly meeting was held on May 6, at 1, Argyle Street, when there was a large attendance, and Mr. W. F. Cooling presided. A paper on "Rock Plants" was read by Mr. Clark. The Chairman made the announcement that in future the meetings of the Association would be held at the Forester Hall, Bath Street, where rooms had been secured, and on and after May 11 these rooms would be opened to members every Monday night from 7 to 10 as reading rooms, &c. Papers would be provided, and he hoped that gradually a library of books interesting to gardeners would be collected.

COMMONS AND FOOTPATHS PRESERVATION.

May 7.—A meeting of the Executive Committee of the Commons and Footpaths Preservation Society was held at 25, Victoria Street, Westminster, on the above date. The Right Hon. G. Shaw Lefevre presided, and amongst others present were Sir William Vincent, Bart., Sir Robert Hunter, Mr. R. P. Blennerhassett, K.C., Mr. E. N. Buxton, Mr. P. Birkett (Hon. Solicitor), and Mr. L. W. Chubb, Secretary.

Mr. E. N. Buxton reported that the City Corporation were proceeding with their opposition to the scheme for purchasing an open space of nearly 900 acres on the eastern confines of the metropolis. The following resolution was unanimously adopted by the committee: "That this meeting of the Commons and Footpaths Preservation Society desires to express its great regret at the opposition threatened by the Corporation of the City of London to the Hainault Forest Bill, and earnestly hopes that the Corporation, which in the past has done so much for the open spaces of London and its environs, will withdraw its opposition to a scheme that in the opinion of the Society will be of great benefit to the metropolis." It was resolved to oppose on second reading in the House of Commons the Old Bridewell Burying Ground Bill, which seeks to override the clauses of the Acts providing for the protection from building of disused burial grounds. It was also decided to oppose the Hastings Harbour District Railway Bill, under which the celebrated East Cliff at Hastings will be subjected to grave disfigurement. The chairman reported that the Charity Commissioners had now given effect to the Society's views with reference to 290 acres of fuel allotments at Frimley, in Surrey; a clause had been inserted in the scheme under which the charity will now be administered to provide that no part of the land shall be enclosed or built upon, and that reasonable access shall be allowed to the public. The chairman also stated that the Society had assisted to defeat a proposal to sell for building purposes 75 acres of Poors Allotments at Burghclere in N. Hants.

It was further decided to enquire into the action of the War Office in forming an encampment on Watchet Hill, one of the most noted view-points in Dartmoor, notwithstanding the strong local opposition to the proposal. The secretary reported that upwards of 150 cases of interference with rights of way, roadside waste and common land in various parts of England and Wales, had been dealt with by the Society during the past month.



*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

APPLE BLOSSOM: *T. B.* Frost, certainly.

APPLES BEAMLEY'S SEEDLING AND STURMER PIPPIN: *W. Baylor Hartland.* For so late a date, the fruits are in good condition, especially those of Sturmer Pippin. The particular method of keeping adopted may be but an experiment, as you say, but it is followed by satisfactory results.

A THREE-SPATHED CALLA: *A. & McA.* These instances of the multiplication of spathes are now become very common, and they are mostly due to excessive vigour in the plants.

CUCUMBER BLOTCH: *Redlands Nursery Co.* We do not deal in microscopic slides, and are unable to give you the name of a dealer in such as the one you require. As these specimens are not likely to be kept in stock, you would have to get them prepared for you.

CUCUMBERS DESTROYED: *W. Bailey.* You have sent us two species of mites belonging to the Tyroglyphidæ. They are evidently not the cause of the injury you speak of, and you should make a further search for the depredator at night.

DENDROBIUM LEAVES: *G. W.* The answer about Dendrobium leaves given last week was quite correct; but beyond that, we think that foul air from the stable-drain gets into the house.

EXPENSES OF REMOVAL: *Constant Reader.* There having been no agreement as regards the matter, you are without redress.

GARDEN FLOWER-BED DESIGNS: *J. Clark.* A book of designs for beds, and list of plants to fill them, can be obtained of Messrs. Cannell & Sons, Swanley, Kent.

GLORIOSA SUPERBA: *Veritas.* This should be grown as a warm-house climber, and after the growth is completed and flowering over, when the foliage turns yellow, the plant requires keeping perfectly dry; and the tubers taken out of the soil, or the latter kept dry until growing time comes round again.

GRAPES RUSTY-COLOURED: *A Constant Reader.* Apparently the bunch has been exposed to draughts of cold air whilst the berries were moist and warm. It is permanently spoiled. Rust sometimes comes from steam impinging on the fruit when water touches very hot pipes or flues, and sometimes when too much of the surface of the pipes or flues is smeared with lime-wash and flowers-of-sulphur, and these are made very hot.

GRUBS: *G. W.* Yes; they are the grubs or larvæ of the daddylonglegs fly. They are more or less surface-feeders, and are not likely to injure the roots of Roses.

GRUBS DESTROYING POLYANTHUS: *Rus-in-Urbe.* The specimen you have sent is the extremely variable and almost ubiquitous caterpillar of the large yellow-underwing moth (Tryphæna pronuba). It feeds on a great variety of plants, both wild and cultivated, and has been known to destroy a bed of Onions. It is a nocturnal feeder, and to destroy it you should search for it at night, more especially so during mild weather in early spring. In the daytime it hides away at the roots or in the crowns of the food-plants, and when full-fed, pupates in the soil.

LEAF GRUB IN HOLLY: *Subscriber.* Phytomyza ilicis. Sweep up all the fallen leaves and burn them.

MELONS CRACKING: *F. D.* Too much water at the root, or the roots have gained access to the moist hotbed beneath the bed of soil; or the bed of soil is too deep, and consequently holds too much water for Melons. A Melon-bed, especially early in the year when evaporation of moisture from the soil and the leaves is not rapid, should have a floor of boards, slates, or tiles laid over it before the soil of which the bed consists is put in, and this, with subsequent moulding-up, should not be deeper than 6 inches.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—L. F. B., Kent.* Your purple-flowered plant is Akebia quinata.—*J. R.* You must not expect us to reply by post to such enquiries, nor can we always undertake to name plants the week they are received. Very often prolonged research is necessary, and that cannot be allowed to interfere with the ordinary business. 1, Pieris floribunda; 2, Claytonia perfoliata; 3 and 4, the more slender leaved Pinus is probably P. aristata, the other P. Balfouriana, but without the cones we cannot be sure which is which; 5, Pinus monophylla.—*F. W. Baker.* Choisya ternata. — *A. C. C.* 1, Thuia dolabrata; 3, Amelanchier vulgaris. The others are mere scraps, and quite shrivelled.—*W. U.* 1, Thuya plicata, *alias* gigantea; 2, Edwardsia grandiflora; 3, Photinia serrulata; 4, Cupressus nootkatensis; 5, C. Lawsoniana; 6, Abies pectinata, Silver Fir. We do not know why the leaves have fallen from some of the branches. —*A. T. C.* Seed-pod of a Martinia, probably the species fragrans.—*S. L.* 1, Pyrus pinnatifida; 2, Helleborus fœtidus.—*J. H.* Polygonum cuspidatum.—*M. C. B.* 1, Dendrobium superbum, more often called Dendrobium macrophyllum giganteum in gardens; 2, D. atro-violaceum; 3, D. formosum.—*W. C. & Son.* Crinum giganteum, sometimes called Crinum petiolatum, and Hippeastrum stylosum, figured in *Bot. Mag.*, t. 2,278.—*C. I. Cambray.* Miltonia flavescens.—*Vigo.* 1, Oncidium Papilio; 2, Brassia brachiata; 3, B. verrucosa; 4, Miltonia Warscewiczii.—*A. B.* 1, Polypodium vulgare cambricum; 2, P. phegopteris; 3, P. dryopteris.—*D. T. W.* 1, Colutea arborescens; 2, Lonicera tatarica; 3, Berberis stenophylla; 4, Kerria japonica; 5, Adiantum Farleyense.—*A. R.* 1, Pyrus Malus floribunda; 2, a variety of Quince; 3, Ornithogalum nutans; 4, Lycium chinense; 5, Pyrus Aria; 6, Prunus Padus.—*W. L.* 1. Eupatorium gracile odoratum; 2, Eupatorium Weinmannianum.—*E. G. S.* 1, Polygala oppositifolia; 2, Chorozema varium; 3, Eriostemon intermedius; 4, Odontoglossum citrosmum; 5, Bifrenaria Harrisoniæ; 6, Justicia chrysostephana.—*Veritas.* 1, Dendrobium moniliforme; 2, Masdevallia ignea (the red); 3, Masdevallia coccinea Lindeni.—*H. S.* Thalictrum aquilegifolium.—*J. T.* 1, Cassinia fulvida; 2, Bupleurum fruticosum; 3, not recognised; 4, Melia Azederach; 5, Swainsonia galegifolia alba.

PEACH LEAVES: *P. E.* and *Hortus.* The brown circular patches are caused by the "Shot-hole fungus" (Cercospora circumscissa). Spray the leaves occasionally with an ammoniacal solution of copper carbonate, in the proportion of carbonate of copper 1 oz., carbonate of ammonia 5 oz., and water 16 gallons. Do not apply the Bordeaux Mixture to Peach trees.—*Constant Reader.* The silver leaf disease, often commented on in our columns; see last week's issue, p. 304. The Nectarines have cracked probably because you have supplied water more freely than the tree could use up in the time.—*J. B.* Seem in the early stage of blister. The Fig leaves are affected with a fungus, Cercospora Bolleana. Burn the affected foliage, and spray with liver-of-sulphur, ½ oz. to a gallon of water. —*W. A. F.* The fruits and leaves are very badly infested with mildew. Take off the whole of the infested fruits and leaves, burning them forthwith; then dress the tree with sulphide of potassium and water, in the proportion of ½ oz. of the former dissolved in 1 gallon of the latter, and repeat the application several times at three-day intervals.

PEAT-MOSS USED UNDER CATTLE: *F. H. S.* Thrown into large heaps to ferment and decay, it will get rid of much of the ammonia, which would otherwise work harm to the Rhododendrons; and after several turnings, it will be safe to use in planting Rhododendrons, in the proportion of one-half leaf-mould and one-half peat-moss. The entire process cannot take less time than three to four months from the present, i.e., at a time suitable for planting.

PELARGONIUMS: *G. F. G. S.* The leaves appear to have been punctured by some insect, perhaps green-fly.

PHLOX STEMS SPLITTING: *W. D.* Although you say that you avoid planting shrubby Phloxes in highly-manured land, we think the soil in which the plants are growing, and from which the stems were cut, is too rich, or you have given too much water, so that the excessive flow of sap has ruptured the rind.

PRESERVING THE COLOURS OF FLOWERS INDEFINITELY: *Collector.* This cannot be done satisfactorily. Perhaps the best way is to bury them in hot sand, and supply fresh hot sand till the flowers are quite dry. Some blue flowers never fade—for example, some of the Campanulas, Gentians, &c.

SEEDLING CARNATION: *Abbot.* A first-class variety, with fair-sized flowers, good petals, and a non-splitting calyx. The colour is as bright a scarlet as we can call to mind in a Carnation, and the perfume is particularly strong. The variety would be valuable for decorative effects in which uncommonly bright colours are required.

SMALL WHITE SNAILS ON BUDS OF APPLES: *H. S.* Syringe the trees with Quassia-water.

THE BEST OF THREE VARIETIES OF APPLE: *H. R. H.* If the Apple-tree does not get cankered in your soil, choose Ribston Pippin; and if it does, then substitute Cox's Orange Pippin. Blenheim Orange is in flavour inferior to both.

TOMATOS UNHEALTHY: *E. M. Watkins.* The roots of the Tomatos are for some reason unhealthy, mainly on account of lack of air in the soil, caused by imperfect drainage. This condition of things causes the spotting and curling up of the leaves. There is no fungus present. *G. M.—P. E.* We can discover nothing wrong in the Tomato growth.

TULIPS BITTEN OFF BELOW THE LEAVES: *Constant Reader.* We suggest the short-tailed mice as the depredators.

VINES: *L. F. B.* There is no disease caused by fungus or insect. The soft blotches and tiny warts on the leaves are caused by the presence of too much moisture, and lack of sufficient ventilation. The air should be admitted quite early in the morning. *G. M.*

WALLFLOWERS: *W. G.* The change in the Wallflower is well known. It is the Cheiranthus Cheiri var. gynantherus of old authors.

COMMUNICATIONS RECEIVED.—W. J. V.—Horticultural Society of Orleans—C. T. D.—A. R. G.—W. B. H.—A. H. B.—M. Draps-Dom—A C. F.—F. W. F., Cornell University—G. J. I—W. W., Dorset—R. A. R.—Richmond Horticultural Society (see p. 250).—J. Elliott.—Editor of *Garden*—E. Bonavia—W. H. C.—W. B.—J. W.—J. H. G.—R. D.—R. P. B—G. G.—Jno. F. W.—H. E.—D. B.—J. J.—A. D.—C. T. D.—S. A.—J. A.—F. C.—C. H. P.

CATALOGUES RECEIVED.

PROTHEROE & MORRIS, 67 and 68, Cheapside, London, E.C.—Nurseries, Market Gardens, Farms, Florists', Seed Businesses, and Partnerships, to be Let or Sold.

FOREIGN.

CHANTRIER FRÈRES, Mortefontaine, Plailly (Oise), France—Aroids, Bromeliads, Cudiæums, Orchids, Ferns, Cordylines, &c.

WILHELM PFITZER, Stuttgart, Germany—General List of Seeds and Plants.

(For Markets and Weather, see p. x.)

Fortune's Yellow Rose, in the Gardens at Lockinge.

THE
Gardeners' Chronicle

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THE GLADIOLUS: ITS ORIGIN AND DEVELOPMENT.

THERE seems to have been some doubt as to what was the real origin of the Gandavensis variety, from which so many beautiful kinds have emanated. The celebrated grower Van Houtte believed it to have been a hybrid between G. psittacinus and G. cardinalis, G. psittacinus having the corolla-tube greenish with purple streaks, and G. cardinalis being a brilliant scarlet colour; while Dean Herbert believed it to be a hybrid from G. oppositiflorus, a white flower, in which the spike is very different from that of G. gandavensis. But altogether, there seems to be some mystery about its origin, for it is said that it comes from South-East Africa, and if so, there must have been some carrying backwards and forwards. The value of the section for decorative purposes was very soon recognised; and an additional interest was added to it by the raising of Brenchleyensis, which originated with a Mr. Hooker, of Brenchley, in Kent. It evidently had a good deal of G. cardinalis in it, was most brilliant in colour, was rapidly multiplied, and became recognised as a most delightful variety. This flower (the Gladiolus) soon attracted the notice of horticulturists both in France and England, and in the former country it will ever be associated with the name of M. Souchet, the late head gardener at the Palace of Fontainebleau; and in England, Messrs. Kelway, of Langport, in Somerset, have been its enthusiastic admirers and most successful hybridisers and cultivators—while of late years Messrs. Burrell, of Cambridge, have taken a foremost place, and those who have seen their grand stands, exhibited at the Aquarium and the Drill Hall, need not be told how great has been their success, and how beautiful are the varieties they have raised. As I know that I have grown both the French and English varieties for a longer period than any other amateur, I think I am qualified to give a correct and unprejudiced opinion with regard to the varieties.

There are two points about the flower which have captivated horticulturists: the first is, there is no flower more easily hybridised; and secondly, there is none more prolific in producing seed, and given an ordinary English autumn, without too abundant rain, the seed is easily ripened, so that there is no difficulty in securing a quantity of bulbs. It is somewhat remarkable that neither here nor on the continent have many taken up the cultivation of the flower. I have before me the catalogue published by Messieurs Vilmorin & Andrieux, who I believe now to be the only French growers who publish one, and you will find the name of no other raiser but Souchet. He has, however, long since passed away, and his establishment has passed into the hands of his nephews, Lorillard and Brunelet; but his was a name to conjure with, and in all the varieties raised since his death, the single letter "S" attached to them show his successors' desire to keep up the old tradition. I believe I am correct in saying that no French nurseryman keeps a stock of the bulbs, and if any orders for them are received, in order to have them executed, resort must be had to Fontainebleau. Nor is the reason for this difficult to see; the bulb requires a great deal of care in cultivation, and also in harvesting. The establishment at Fontainebleau is on a very large scale, and nurserymen in most countries know where they can have their orders executed. Many years ago, Mr. Kelway, of Langport, in Somerset, had his attention directed to the flower, by whose beauty he was captivated, and his culture of it extended to upwards of 20 acres; but he too had no competitor until a few years ago Mr. Burrell, of Cambridge, began its cultivation. Mr. Burrell is a very careful hybridiser, and the result of his work is such that if I could exhibit now, I should be perfectly content to select for my stand some of his unnamed seedlings.

I have said that G. oppositiflorus entered into the present race of Gladioli, and brought with it one defect, as its name implies: the blooms, instead of facing the spectator, are back to back. Attempts were made to obviate this, and I well remember that in some of the earlier of Mr. Kelway's seedlings when they were exhibited in the Crystal Palace they were shown in Yucca leaves—they being stiff, caused the blooms to a certain extent to face the spectator. When the hybridisers set to work to improve the flower, there were four points to which they directed their attention: first, a greater length of the flower bearing part of the spike, so as to have a large number of blooms open at the same time; in the earlier stage of their development, growers were satisfied with having three or four open at once, but this has been gradually increased, and now spikes have been exhibited with sixteen, eighteen, and even twenty blossoms open at the same time. Secondly, the spike itself has been made more compact; it was not unusual to have some fine spikes which were spoiled by having large gaps between the blooms. I may instance two as illustrating this point Souchet's Semiramis and Kelway's Duchess of Edinburgh, both of them grand flowers, but whose effect was spoiled by this defect; we now have varieties in which the blooms so closely impinge on one another that there is no daylight between them. Then, again, increased size is a point aimed at, and in the more recent varieties the individual blooms are more than double the size we used formerly to have; and this size has not been gained at the expense of the substance of the flower, for flimsy blooms would no longer be tolerated, and we want to see spikes which stand out boldly—and these we have now, from both our English and foreign raisers. Then, of course, colour could not be left out of the operations of the hybridiser, although this is a more capricious matter than those I have already mentioned; still, the colours must be clear and decided, and anyone who has seen Mr. Kelway's stands at the Royal Horticultural Society's shows, will at once recognise how marvellous has been the gain in this respect, where he has perhaps shown a couple of dozen blooms of one variety, thus giving a mass of colour which no autumn-blooming flower that I know of can equal, much less surpass. If, then, the Gladiolus has so improved, how is it, it may be asked, we do not see it more generally grown and exhibited? The answer to this brings me to the darker side of the picture. The fact is, that it is a troublesome flower to grow, and still more troublesome to exhibit. In the first place, great care must be taken as to the ground in which it is grown, and the manner in which that ground is used. I fancy the soil that suits it best is an unctuous loam, not gravelly, but one which you can squeeze between your fingers, in fact such a loam as suits the Strawberry and the Rose. Then, again, great care must be taken in lifting the bulbs at the proper time and harvesting them; and even after all the care that may be taken, they have an unpleasant way of dying. I once asked a large and successful horticulturist why he did not grow them? "Why," he said, "I have spent nearly £50 upon them, and I have not any left;" and thus it has always happened that at exhibitions where they were shown, I never remember seeing more than three or four amateur exhibitors. Mr. Kelway and I used to have friendly discussions as to the cause of this decay. I used to maintain it was a disease; while he repudiated that notion, and said it arose from bad cultivation or degeneracy. I used to say it could not be degeneracy, for on looking at Monsieur Vilmorin's catalogue, you could find that any that had ever been put into commerce by the Fontainebleau firm was still to be had; and I have no doubt that if bulbils or small corms which cluster round the base of the old bulb, were saved and cultivated with care, any cultivator might keep up his collection indefinitely.

Various growers both here and in America have striven to introduce other varieties amongst them, and of these I may have something to say anon, but I do not think that they will ever reach the beauty and stateliness of the Gandavensis section. *Wild Rose.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM BELLATULUM, AND HYBRIDS FROM IT.

An interesting set of plants of this section of Cypripedium is now in bloom in the gardens of H. Druce, Esq., The Beeches, Circus Road, St. John's Wood (gr., Mr. Walker). They include C. concolor, C. niveum, C. bellatulum, C. Godefroyæ leucochilum, and two hybrids raised at The Beeches, and named C. × Mrs. Herbert Druce (niveum × bellatulum), and C. × Walkerianum (concolor × bellatulum). The former is like a very large pure white C. niveum, with minute purple dots over its entire surface; and the latter

has flowers nearly as large as those of C. bellatulum, but thinner in substance, and of a yellowish cream-colour, evenly spotted with purple markings, a row of which markings forms a line up the middle of each petal. It has been variously stated that C. Godefroyæ is a natural hybrid of either C. niveum or C. concolor × C. bellatulum, but both the hybrids of those parentages in Mr. Druce's collection differ widely from imported C. Godefroyæ. It is very singular that in many noted collections of Orchids, in the most favoured parts of the country, the C. bellatulum and C. niveum section of Cypripediums are not successfully grown, while in the closed-in town garden of Mr. Druce they are the most satisfactory of all Orchids. The plants are potted in brick or mortar rubbish, mixed with loam fibre, and they are suspended in a warm and rather shady house, within 2 feet or so of the glass of the roof. Not only have hybrids between several of the species been raised here, but C. bellatulum now in flower has been raised true from seeds.

In this garden there is also a plant of Odontoglossum × (maculatum × Cervantesii decorum), from a cross, the seeds of which were sown five years ago, and Mr. Walker has lately sown the remainder of the seeds saved from the original sowing, and they are germinating freely. This proves that Orchid seeds will keep; and a similar case of old seeds which germinated in a few days after sowing which came under our notice, seems to prove that the seeds may give better results if properly harvested. A fine specimen of Cattleya Skinneri, one of C. citrinum, a plant purchased in 1885; good C. Lawrenceana, C. Schroderæ, C. Mossiæ, C. Mendeli; Odontoglossums including an O. citrosmum with three fine spikes; good Cymbidium Lowianum, Maxillaria Sanderiana, Masdevallias, Dendrobiums, &c., are also in bloom.

BELGIAN HORTICULTURE.

(*Continued from p.* 310.)

SOME OF THE GHENT NURSERIES.

No one who is familiar with some or other of the 400 or so nurseries of more or less importance in the neighbourhood of Ghent, can fail to have been struck by the small number of species cultivated in any one establishment, and their similarity to the plants cultivated in most of the others. Palms, and especially Kentias, are seen everywhere in such numbers as to cause one to speculate as to where an outlet can be found for them. If you put the question to the growers, you will learn that they also wonder at times where the enormous aggregate produce goes to, but the fact remains that none of them have ever too many plants of good quality, or experience any difficulty in disposing of as many as they wish. It is even said that orders for Kentias are coming in from Algiers, whence many of the Belgian nurserymen procure their largest specimens of Phœnix, Chamærops, &c., there grown in the open air, and doubtless the Kentias are intended to be returned in like manner when large. Palms, Araucarias, Aspidistras, Anthuriums, Azaleas, Imantophyllums, Aralias, and such like subjects, form the bulk of the stock of most of the nurseries, and they are well grown.

ORCHIDS, &C.

Of late years, Orchids have been cultivated in some nurseries, and in the case of—

M. CHAS. VUYLSTEKE, AT LOOCHRISTY,

they form the principal feature. There is house after house of splendidly-grown Odontoglossums, Cattleyas, and Lælio-Cattleyas. In raising hybrid Odontoglossums M. Vuylsteke has taken the lead, and his works have long since been perfected, as witness the magnificent mauve-purple blotched varieties of his O. × ardentissimum, two examples of which we were privileged to inspect, as well as a house of about 1,000 fine hybrid Odontoglossums of flowering age; O. × Rolfeæ varieties, forms of O. × bellatulum, O. × Vuylstekeanum, and other fine hybrids of various parentages. The numerous plants of O. crispum were finely furnished with flower-spikes, and there were good O. × excellens, O. × Wilckeanum, O. × Ruckerianum, and O. Pescatorei in bloom. In other houses there was a selection of Cattleyas, Lælias, Lælio-Cattleyas, and other Orchids.

M. Vuylsteke's second specialty is Hippeastrums, or Amaryllis, as they are generally called, and of which there was a long span-roofed house of specimens in full bloom, the scarlets and blood-red forms being superb. Rhododendrons (Azaleas) were fine; Aspidistras also; the inevitable Kentias good, and the whole establishment, both indoors and out, one of the neatest in the Ghent district.

M. THEODORE PAUWELS, AT MEIRELBEKE,

makes Odontoglossum crispum and Phalænopsis his chief specialties. Of the former, there was a good stock of chiefly unflowered importations; and of the latter, a healthy lot, the remainder of the importation of Phalænopsis amabilis Rimestadiana, recently illustrated in the *Gardeners' Chronicle* from photographs sent by M. Pauwels, and of which a large importation is again expected. M. Pauwels also grows Cattleyas and a selection of other showy Orchids.

M. MAURICE VERDONCK, OF GENDBRUGGE,

also imports and cultivates Odontoglossum crispum extensively, and has a number of good things in showy Orchids of other kinds, and especially of the Orchids of Guatemala, of which he receives direct importations.

M. DE SMET-DUVIVIER, AT MONT ST. AMAND,

cultivates a good collection of Orchids, and notwithstanding the number of flowering plants in his collections at the show, had still a goodly number in bloom in his houses at the time of our visit. Of these we noted a selection of Odontoglossum crispum and other Odontoglossums, Dendrobium Kingianum, D. nobile Cooksoni, and other Dendrobes; Promenæa xanthina, Masdevallia Pourbaixii, Cymbidium grandiflorum, a number of good Cypripediums, &c.

M. de Smet-Duvivier is one of the leading cultivators of Anthuriums of the A. Scherzerianum class, and his houses contained a good show of them; also a fine stock of Rhododendrons, Azaleas, Araucarias, Kentias, and other useful decorative subjects.

M. EMILE PRAET, OF MONT ST. AMAND,

is also an Odontoglossum specialist, and has a fine stock of O. crispum. Here the remarkable O. crispum Franz Masereel first opened its flowers, and the handsome spotted O. c. Madame E. Praet, and other good things appeared. Thousands of sturdy little plants have yet to flower for the first time in cultivation, and more phenomenal varieties are confidently expected. One house, 27 feet wide and 100 feet long, contains a large number of O. crispum, most of them sending up flowers for the first time. There is also a house of Vandas, several of Cattleyas, and other Orchids, and a large quantity of Palms, and other decorative plants.

M. H. J. KUYK, MONT ST. AMAND,

in addition to a fine general stock, has also two houses of Odontoglossums.

M. E. PYNAERT, PORTE DE BRUXELLES,

has one of the most varied collections of plants, the Palms and decorative plants being specially good. We found in the Orchid-houses a good number of Cypripediums in bloom, including varieties of C. × Lathamianum, C. × nitens, C. × Dauthieri, C. × Leeanum varieties, C. × politum, C. Drurii, C. × Pollettianum, C. × Godseffianum, C. × Wm. Matthews (Lawrenceanum × Mastersianum), C. × J. Bartels, C. × Jupiter, &c. In other houses, Ansellia africana, Odontoglossums, Oncidiums, and Cattleyas, were in bloom, and the large stock of Palms, Dracænas, Araucarias, &c., in fine condition.

THE SOCIÉTÉ HORTICOLE GANTOISE, CHAUSSÉE DE COURTRAIS,

under the able management of M. E. Wartels, has become one of the most important horticultural establishments in Ghent. The stock of Palms and other ornamental plants is enormous, and under the guidance of M. Wartels, we passed through seemingly endless ranges of Kentias of all sizes, Araucarias, houses of Cocos Weddelliana, Thrinax elegantissima, Livistona altissima and L. rotundifolia; of Crotons, Dracænas, Aspidistras, Anthuriums, and other decorative plants. One tall span-roofed house holds the specimen plants, the centre being principally filled with elegant Cocos reaching to the roof. In the open ground is a large stock of fine Bays, of Bamboos, and the usual things pertaining to a good Ghent nursery.

SOCIÉTÉ ANONYME L. VAN HOUTTE, PÈRE, GENDBRUGGE,

still maintains its position in the horticultural world. The fine collection of rare plants, and especially the complete collection of bulbs, were dear to the heart of the late Louis van Houtte. To inspect these, and be entertained by the conversation of the late respected proprietor, was always a thing to remember with pleasure, but they have had to give place to the decorative Palms, Araucarias, and other plants, for which there seems to be a continuous demand. But still, the establishment contains many plants of interest not found in other Belgian nurseries. Specially noted were a charming collection of beautifully-marked Sonerilas and Bertolonias, a very remarkable and beautiful selection of Aroids, including the finest lot of Caladiums we have seen in Belgium. The Rhododendrons and Azaleas also were fine and well bloomed.

M. A. DE SMET, LEDEBERG,

in addition to the usual nursery stock, has a marvellous collection of coloured spathed Anthuriums, from the finer, large scarlet spathes of A. Scherzerianum to the white, salmon-tinted, scarlet-spotted ones, and every conceivable variation, the result of seeding and selection.

MM. DE SMET, FRÈRES, LEDEBERG,

are among the oldest and best-known of Ghent nurserymen, and their establishment has never looked better. The stock contained Palms, Araucarias, &c., but with a very large proportion of rare and interesting plants, such as rare Palms, Cycads, Ferns, &c. The large stock of Rhododendrons, Azalea mollis and indica, Bays, &c., is also good.

(*To be continued.*)

NEW OR NOTEWORTHY PLANTS.

GLORIOSA ROTHSCHILDIANA, N. SP.*

A MAGNIFICENT new species of Gloriosa has flowered with the Hon. Walter Rothschild, M.P., at Tring Park, Tring (fig. 125), from tubers collected by Major H. B. Rattray, in the Uganda

* *Gloriosa Rothschildiana*, n. sp. — Stem climbing, simple at first, afterwards branched; leaves, bright green, glabrous, oblong acuminate, cirrose at the apex, lower ones verticillate, upper narrower, alternate or opposite; flowers produced singly from the axils of the leaves; peduncle 3 to 4 inches long, abruptly curved near the ovary; perianth segments oblong-lanceolate acuminate, keeled at the back, recurved at the tips, slightly wavy at the margins, over 3 inches in length, glowing crimson with a dark purple mark at the base; style and anther-filaments white, straight, spotted with purple; style longer than the stamens, sharply reflexed, protruding beyond the segments; stigma of three linear lobes, each about 1 inch long. Habitat, Uganda district. Collected by Major H. B. Rattray. *James O'Brien.*

Fig. 125.—Gloriosa Rothschildiana: a new species, having rich crimson flowers. (See p. 322.)

district, near the Lake Victoria Nyanza, Tropical Africa, and which proves to be by far the handsomest of the genus. Its pure glowing crimson-coloured flowers constitute it one of the showiest of warm-house plants.

The genus is divided into two sections, viz., the climbing, and the dwarf, or non-climbing. All the species are natives of Africa, although Gloriosa superba, which is very common in Western Africa, is widely distributed in Tropical Asia as well. The climbing section, to which the present fine new species is added, comprises:—

1. *Gloriosa superba*, a well-defined species, with yellow and red flowers, the segments of which are much undulated at the margins, and sharply reflexed.

2. *Gloriosa virescens* and its varieties, of which Plantii, one of the best known, has the segments more or less wavy, the colour varying from yellow in the variety Leopoldi to various tints of yellowish-red.

3. *Gloriosa grandiflora*, which some regard as a variety of G. virescens, has wholly yellow flowers, the reflexing of the segments and their undulation approaching G. superba of the dwarf section.

4. *Gloriosa abyssinica* has erect stems 1½ to 2 feet in height, coloured like those of G. virescens, but with broader segments, not at all crisped at the margins.

5. *Gloriosa Carsoni* is a fine new species which flowered at the Royal Gardens, Kew, from tubers sent from the neighbourhood of Lake Tanganyika, and was described in the *Kew Bulletin*, 1895, p. 74.

6. *Gloriosa minor*, described by Dr. Rendle, is known only by the specimens in the Botanical Department of the British Museum, gathered near the Shebeli River, N.E. Equatorial Africa. It is a singular plant, the flowering specimens of which are only 3 or 4 inches in height. The foliage is much narrower than in other species, and the flowers smaller, but still large in proportion to the size of the plant.

Neither in the Kew Herbarium, nor at the British Museum, are there any specimens which will match with the present species, which may be regarded as nearest to some of the showier forms of G. virescens, Lindl., which is placed under G. simplex, Linn., in the *Index Kewensis*.

With regard to the stability of the characters, "climbing" and "dwarf or non-climbing," it is very probable that under certain circumstances the climbing plants may become dwarf, as do many climbing plants under cultivation when the means of climbing are lacking. By the same rule the non-climbing, I am inclined to think, might assume a climbing habit if growing in woody districts, or in places where the use of the prehensile, tendril-like continuations of the leaves would enable them to rise to a situation more favourable to the production of their flowers if enclosed by strong growing vegetation. All the species, dwarf and climbing, have in a greater or less degree these tendril-like continuations of the leaves, except the very small G. minor from which perhaps ages of existence in open situations, and probably in very shallow soil, have almost if not entirely eliminated the feature.

Littonia modesta, and *Sandersonia aurantiaca*, both African species with orange-coloured flowers, belong to allied genera, and have the same fleshy tooth-like, often forked, tuberous root stock.

In the matter of culture, the Gloriosas are very easy to grow and flower successfully, but as all are deciduous plants, the growths turning yellow and dying off after completion of flowering, they require drying off and keeping thoroughly dry, but not in a cold situation, until growing time comes round again. It is the neglect of this dry resting season which causes Gloriosas to become occasionally scarce until fresh importations are obtained. When the growing time arrives in late winter and early spring, the tubers should be potted singly in sandy peat and loam in rather small pots, and when active growth has commenced they should be given a very large shift into a much larger pot, and placed where they have to grow and flower, means of climbing, either by sticks or strings, being at once provided. *James O'Brien.*

A NEW TULIP.

Under the name Tulipa præstans we received last year specimens from Messrs. Van Tubergen of Haarlem, and from which the accompanying illustration was made (see fig. 126, p. 325). As Tulips are the flowers of the week, we publish the illustration in the hope of obtaining some further information concerning it. Mr. Baker, whose authority we all respect, is, owing to the fulness of his knowledge, cautious about giving an opinion, but points out the resemblance to T. Kolpakowskyana.

HOME CORRESPONDENCE.

SESSILE AND PEDUNCULATE OAKS.—As Mr. Simpson's letter in your issue of May 2 contains several remarks that are inaccurate and misleading, I cannot permit it to pass unchallenged. He states: "My house is high up on the same formation, in the same district, not far from Chatsworth; but a light sandy soil in such spots would, I think, excite the curiosity of geologists." Mr. Simpson's house is distant some 18 miles from the wood in question; and while the latter is situated on the very western edge of the grit formation, his house is on the extreme verge of the eastern side, where the grit beds are finer in quality, and largely interspersed with beds of shale, which ultimately merge in the clays and shales of the coal measures that are in close proximity. Moreover, his house is several hundred feet lower in altitude than the wood under discussion, hence the character of the two soils will differ greatly. Mr. Simpson stated in his first letter that he knew the Oaks at Chatsworth, and he now says they are nearer 150 than 100 years of age, as given by Professor Fisher. As on most large estates, we have many plantations, and we have Oaks varying in age from young saplings up to some hundreds of years. To which does Mr. Simpson refer? He was not with the party when this discussion arose, he has not been in the wood (at least, so far as I know) during the period I have been here; while his remarks on the soil and trees lead me to think he cannot even now identify it, and that he has never been inside this particular wood. To settle the age question, as unfortunately the time of planting cannot be found from our estate books, I have had the concentric rings of several Oaks, now lying felled in the wood, carefully counted by a gentleman whose veracity is unimpeachable, and who used a strong magnifying glass in order to be thoroughly accurate. He gives the maximum of his efforts as 103. There can be no dispute as to the character of the soil by anyone who has seen it, and if Mr. Simpson can tell us how the detritus from the disintegration of a grit, whose angular component particles of sandstone are large enough to be classed almost as conglomerate, can form on the top of the hill anything else than a light sandy soil, then he will be able to create a new era in geology. I may mention that much of our sand for mortar-mixing is taken from this wood, and is capital sharp sand for the purpose. As to the marking of the trees, this was done under my own supervision, while afterwards every tree was gone over by my then assistant, Mr. J. B. Braid, and myself together, and carefully scrutinised; while I may mention Mr. Simpson's remarks notwithstanding, that from Mr. Braid's knowledge of botany, I could not have had a better companion for the work. Leaves and acorns were both taken into account, and I think rightly so, seeing that, according to Prof. Fisher's description, the difference in the leaf-formation has a good deal to do with the adaptability of the two varieties for different soils and situations. I am not aware that I have suggested, as Mr Simpson asserts, that the Oaks in this wood consist of the two extreme forms only. It would certainly be strange if this were so; nor would I expect the seed from truly sessile Oaks, if grown side by side with the pedunculate variety, to produce other than a small percentage of really sessile seedlings, as I think it is admitted by all that the two varieties readily cross. His statement that, because the altitude of the wood is equal with that of Buxton, the rainfall must be the same, is new meteorology to me, if by that he means that all places of equal altitude must of necessity have a similar rainfall. He further mentions, "It is admitted that the trees have been stag-headed only for some years, and they must therefore have been growing quite healthily during the whole of their time." When, and by whom, was this admission made? During the years I have been at Chatsworth, three falls of back-going timber have been taken out of the wood, and from the open condition in which I found it, together with the entries in our timber-book, it is evident that this condition of things has been going on for a considerable period previously. I am glad to see Mr. Simpson make the remark that if the trees are not big, that must be due to the elevation, as it shows that he at least is not a believer in the theory recently advanced in another magazine by "Forester," that soils, aspects, and elevations, were of no account in the growing of timber-trees. In fact, so convinced am I of the utter futility of attempting to grow pedunculate Oaks on the soil in question, that in 117 acres there recently planted up, not a single Oak has been used. I should have been glad to have given true sessile Oaks a trial, but find it impossible to procure these from nurserymen; while to sow seed in that particular portion of the estate, even although it had been selected from sessile trees standing by themselves in order to minimise the chance of cross-fertilisation, would be to court failure for reasons which need not be detailed here. *J. P. Robertson, Chatsworth, Chesterfield, May* 12, 1903. [This discussion must now be closed. Ed.]

CHICKENS FROM TWELVE MONTHS' OLD EGGS.—I beg to enclose you a letter just received from one of my correspondents which, I think, will interest many of your readers:—

> *To the Manager, British Egg Preserving Depôt, Hinckley, Leicestershire.*
>
> "I am writing to tell you, as I think it will interest you, that I have just hatched a chicken from an egg which I preserved in your Water-Glass twelve months ago. I put the egg in the solution on April 15, 1902, and I set the egg on April 16 of this year, and the chick was hatched last Wednesday, a nice bird, and quite strong. I have had it photographed, and if you care to see it I will send you a copy. "E. DARE."

I may say this is not the first person we have heard from who had discovered that Glass-preserved eggs retain their fertility for a prolonged period after being immersed in this solution. *K. B. Baghot De la Bere, Burbage Hall, Leicestershire.*

AUBRIETIA OR. MULES.—With the view of giving honour to whom it is due, and for the sake of accuracy, I shall be obliged if you will permit me to say that Aubrietia Dr. Mules was raised by Messrs. Clibran & Son, of Altrincham, and not by the well-known grower of hardy plants whose name it bears. *S. Arnott, Carsethorn by Dumfries.*

A NEW YELLOW-FLOWERED MARGUERITE.—I send for your inspection a flower of a variety of Marguerite (Chrysanthemum frutescens) called "Golden Sun," which I think will prove a valuable addition to our rather limited number of varieties of yellow-flowered Marguerites fitted for growing in pots and for cutting purposes. The plant is strong and vigorous in growth, and the flowers large and of a beautiful golden tint. Messrs. Walsham & Sons, nurserymen, Westwood, Scarborough, hold a long stock of fine plants for distribution, specimens of which will be seen at the forthcoming horticultural exhibitions. *Bailey Wadds, Birdsall, York.*

BUNCH PRIMROSES.—In reply to Mr. Tallack, I must state that the standard for Bunch Primroses here is extremely high. Every plant is examined, and any having the least deformity, or that is lacking in colour, is destroyed. As

regards the cultural standard being low, I should feel extremely obliged if Mr. Tallack would inform me what his "high culture" consists of. The culture here consists of trenching the ground, working in large quantities of manure, and top-dressing the plants with leaf-soil after division. Plenty of water is applied once, and the plants are then just cleared when required. The soil of this garden is on the lower greensand, and is very silicious, and largely mingled with silicate of iron. Many square miles of the land is covered with Scots Fir, Heather, Gorse, Whortleberry, &c. I do not think that there is a more barren soil in England. The one advantage we have is the absolutely purity of the air, for the elevation above sea level is about 800 feet. The soil after large applications of manure and lime, seems to suit large numbers of deep-rooting plants, but those that are shallow rooters readily succumb to drying winds and parching sun. To me two years does not seem too long to wait for a good Primrose plant, and I have seen clumps of bunch Primroses in this district which have been left for a period of two years in one spot, that would make a Primrose enthusiast green with envy. *Old Kewite, Hindhead.*

LEATHER AND OLD SHOES FOR VINE BORDERS.—The reference in last week's issue to this subject may perplex some and interest others. Having personally known the Turnford establishment for some twenty years, and been intimate with a manager who spent a dozen years there, and under whose instructions the Vine borders were made, I may state that in those days no old leather was ever used, but fellmongers' refuse was freely used in the making of the borders. This being rich in a variety of elements, with a good percentage of lime, was of use to a certain degree, but would later on be more of a mechanical than a chemical agent. For the past six years Turnford has been under new management, and though I have done some little practical work there, with all my eyes open, I had no idea of the Messrs. T. Rochford & Sons, departing from their practice. The value of such material—leather and iron, would be nil, even though Vine roots will cling to such, and be happy. Such leather if burnt into ashes would be far more beneficial. *Stephen Castle.*

PHEASANTS AND BULBS.—The letters that have been appearing for some time prove the pheasant plague to be very widespread. There are still people, however, who do not credit the birds with a capability of doing the mischief so many gardeners well know that they do. Only the other day, a gentleman who paid a visit to the gardens asked me seriously if pheasants really ate the bulbs his gardener blamed them for eating. That, of course, I could not say, as rats work sometimes in conjunction with pheasants, sometimes alone; but that pheasants are in too many instances the greatest garden scourge existing cannot on the evidence be doubted. Countess Cowper's plan of destroying those caught, is doubtless perfect; but it has an obvious drawback, inasmuch as it is inapplicable in the great majority of cases, garden-owners, as a rule, refusing to have the birds destroyed; and when they do, it cannot be depended on as successful. The writer is aware of a case where bird after bird was shot or caught, each one being thought to be the particular thief, but the bulbs disappeared notwithstanding. The fact is, you may find no more than one or two birds at a time about the garden, and without any apparent reason, another day may count a dozen or a score. Moreover, I have known them leave alone some special plant for several years, and without warning commence with as keen a relish as ever on the particular tit-bit. Though we have lost thousands of Tulips here, they are only one plant out of many. For instance, it is almost impossible to grow Carnations in the open. Kept netted almost till fully grown, they will attack the plants when unprotected, and leave nothing but the remains of the stems and the roots. The very latest object of their attention with us is Sweet Peas. Last year they started on a row of early planted stuff, protected, as was thought efficiently, with a close understicking of evergreens in addition to tall sticks, and in one day a row 120 yards long was

FIG. 126.—TULIPA PRÆSTANS (?). (SEE P. 324.)

hopelessly ruined. Later stuff could only be grown by affording the protection of wire-netting up each side of the row. They eat small fruits, too, with avidity, and on that account Strawberries and Currants have to be netted while still quite small to save the fruit. We can produce no green crop without protection. It is, of course, impossible to protect everything; if so the less valuable are rendered bitter by means of a composition of quassia, soot, and soft-soap, but it is not efficient always. Reverting to bulbs, the plan adopted by Mr. Wolley Dod, which I also have adopted for some time, viz., deep planting, is undoubtedly the only safe method. I have Tulips flowering where pheasants are fed, and where there are always a few going about, and not a single bulb have they touched. In the case of Crocuses too, where corms were actually eaten to the very last one, deeply planted ones have been left. It goes without saying that pheasants are provocative of the gardeners' wrath, and I did not much wonder at a young hand telling me the other day he was not going to stand them much longer, but would destroy the transgressors. It is clear, however, that such a course is not only injudicious, but almost certain to recoil on the head of the person who adopts, on his own responsibility, such drastic measures. The birds are the proprietor's property, and if he does not mind feeding them on expensive bulbs, and does not grumble at the loss of his vegetables and flowers, the gardener can well afford to act on the same principle. An old friend of my own got so exasperated with their depredations, that he unfortunately took his gun and shot every bird that appeared inside the garden; defied the keeper when he naturally expostulated, with the natural result that after a long and close connection with the family, he was dismissed with an annual allowance—and as often happens in such case, broke down and died shortly afterwards. *B.*

BLIND-WORMS AND SLUGS.—In *Animal Life*, No. 10, April 1903, p. 338, it is stated that the favourite diet of this creature, the blind-worm, "consists of small grey meadow slugs, though a nice juicy earth-worm is not despised on occasions . . . but slugs are what the blind-worm principally lives upon, and for that reason it is most beneficial to the gardener and the agriculturist." Its name is Anguis fragilis, because, when roughly handled, its tail snaps completely off, like that of some lizards; a new tail grows to replace the lost one. It was supposed to be a small snake, and venomous; but it turns out to be a quite harmless lizard, without legs. Of course it is not harmless to slugs, and that would be the comfort of it in a garden. It comes out to feed at dusk, when slugs are about. Now, such being the case, it would be advisable for every garden to have a colony of these blind-worms—as a matter of fact, they are not blind at all—to war against those little pests, the grey slugs. I should say there are few gardens which do not harbour these pests. My little garden possesses many of them, and I should like to try the experiment of introducing this blind-worm as their natural enemy. Can anyone inform me where I could procure some? Is there anyone who sells them as natural history specimens? And can anyone say whether there is any objection to introducing the blind-worm into one's garden? I keep spiders in my glasshouses to war against insects, and if I could get hold of an enemy to slugs, it would appear to be a benefit. *E. Bonavia, M.D., May* 13.

BULB GARDEN.

SOME BULBOUS PLANTS FOR THE CONSERVATORY.

WITH the exception of Hyacinths, Tulips, Narcissus, Crocus, Alliums, and a few others, the cultivation of bulbs for conservatory decoration and cut flowers seems to be much neglected, and the reason for this state of things is difficult to account for, considering the small amount of labour they require to bring them to perfection, and taking into consideration the fact that many are dormant, at a season when Chrysanthemums, Salvias, Eupatoriums, and many other plants, demand in their cultivation a great deal of labour and expense, make them all the more desirable. Apart from their brilliant colours, diversity of form, and cheapness, many are never, and others seldom, infested with plant-pests, and are only attacked by the bulb-mite and mealy-bug.

There are many others of exceptional merit that are not dwelt upon in this article, and if I were to do so in detail would demand more space than the editor could spare.

A dozen pots of that pretty Iridaceous plant, Herbertia pulchella, would create quite a sensation at a flower show, and the same may be said of Elisena longipetala, Ismene calathina, and several others; and yet I have never once seen either of them shown. It may be said that there is, from a nurseryman's point of view, no demand for them, but I am convinced that this view would soon be altered if these plants were shown in good condition.

ANOMATHECA CRUENTA.

This exceedingly pretty little Irid, a native of South Africa, should be included in every collection of bulbous plants, its pleasing scarlet-coloured flowers, Freesia-like foliage, and dwarf habit, making it a welcome inmate of the conservatory during the months of May and June. The plant is easily grown in a mixture of loam, leaf-soil, and sharp sand, and should be potted rather firmly in a 4½-inch pot.

ELISENA LONGIPETALA.

This plant possesses waxy-white flowers, showing above the foliage, with a gracefulness unsurpassed by those of any other bulbous plant which has come under my notice; it may be grown in a similar kind of soil to the foregoing. In order to have plants of flowering size, 10-inch pots are required. The plant succeeds in an ordinary greenhouse, and after flowering is over, the bulb should be gradually dried off, and rested till the months of February or March, when it should be firmly repotted. *J. W. Miles.*

(To be continued.)

The Week's Work.

FRUITS UNDER GLASS.

By T. H. C.

Strawberries.—Plants bearing ripe fruits should be afforded just as much clear tepid water as will keep them from flagging, and be well ventilated when the weather is suitable. Syringe succession plants twice a day when not in flower, and continue to so do till the fruit begins to colour, and apply manure-water occasionally. During sunless weather, the plants, if in a cold-house, need much care in order to prevent the fruits from decaying at the stalk, and no syringing should be done. Thin the fruits on late successions, leaving elght to a dozen of the best, the lesser number if very large fruits are required. I find Royal Sovereign to be an indispensable all-round forcer, and when grown under suitable conditions, its flavour is excellent. After the crop of fruit is gathered, the plants may receive a thorough cleansing, and be carefully hardened off and planted-out for fruiting next year.

Early Peaches and Nectarines.—Let the syringe be withheld from trees upon which there are ripening fruits, and apply more air and less humidity. Push back the surrounding foliage, and elevate the fruits so that they may benefit from the sunshine. When the fruits approach ripeness, gather those that part readily from the shoots, doing this every day, and taking care not to bruise them. If the fruit has to be sent to a distance, gather it before it is fully ripe. The fruiting-wood on trees from which all the fruits have been gathered, whether in pots or planted out, should be thinned, and the trees afforded a thorough cleansing; be sure that the soil does not lack moisture, and if necessary afford liquid-manure. Artificial heat may be dispensed with in such houses, the ventilators opened wide night and day, and the foliage cleansed by daily syringings.

Succession-houses.—Train-in the shoots, avoiding crowding them closer than 6 inches apart; cut back gross shoots to the lowest basal shoot, if they cannot be removed. Peach trees, especially young ones, when not bearing full crops of fruit make too much wood, and such trees should be afforded clear water only; but aged trees, and those that are bearing full crops, may be afforded liquid-manure from the farmyard, and some good phosphatic manure occasionally. The night temperature may range from 60° to 65°, air being given freely in fine weather, but closing the house early, and letting the temperature run up to 85° or 90°, with plenty of humidity in the air. Syringe the trees twice a day in fine weather, and take prompt measures against aphis and red-spider. Fruit, when at the stoning stage, should not be subjected to a higher night temperature than 60°, and 70° to 75° by day, except in very hot weather. Thin the fruits for the last time when stoning has taken place, and leave one fruit to every square of 10 or 12 inches if the state of the tree admits of it. The disbudding of the latest trees should now be brought to a finish, and in this matter carry out the instruction given in earlier Calendars. Partially thin the fruits if they are abundant, leaving one to every square of 6 inches.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Masdevallia Harryana, M. Veitchiana, and its variety grandiflora, have a good effect when arranged in the Odontoglossum-house amongst the O. crispums. Damping down in this division should be sparingly done, especially in dull weather, and the house should be kept well ventilated; leaving a small amount of top air on at night whenever the outside air is not cold, otherwise the flowers will become spotted.

Lycastes, Anguloas, &c.—Of L. Skinneri and its varieties, L. macrophylla, and L. Balliæ, we have plants which are now coming into growth, and these need more moisture at the roots than hitherto. When the growths are about 3 inches high the state of the roots should be ascertained, and any plant requiring it should be repotted. Lycastes and Anguloas do not need repotting annually, providing the best kind of potting material be employed. I have observed some splendid results when these plants have been potted in leaf-mould, and the pot provided with one crock only in the bottom. Still, I would not advise the employment of this sort of material by itself, there being a great risk in applying water in the winter season, and a more substantial kind of compost seems preferable. This may consist of equal parts of turfy peat, turfy loam, and leaf-mould in a rough state, with a considerable quantity of silver-sand. The surface of the pots should consist of a neat layer of fresh sphagnum. Over-large pots should not be chosen, nor should the drainage be scanty.

Lælia aromatica, L. cruenta, and L. Deppei, usually flower at this season, the flower-buds and the new growth appearing together. These species may be potted now, or after the flowers have faded, the former course being preferable owing to the roots sometimes getting far advanced if potting be carried out later. Anguloa Clowesii and A. Ruckeri, a beautiful species known under the popular name of the Cradle Orchid, flower about this date, the buds and new growth coming together. The plants should be examined, and if found to be in need of repotting, choose for them larger pots than those in which they have been growing, for they are strong growers. These plants should be afforded a light position in the intermediate-house, and be afforded water sparingly till the growths are well advanced, and afterwards more plentifully until the growth of the bulbs is complete. These plants are subject to red-spider, which infest the lower sides of the leaves, but the free use of the syringe on bright days, and an occasional spraying with some weak insecticide, will keep this pest in check.

Lycaste (Bifrenaria) Harrisoniæ is a pretty Orchid, with fragrant flowers, which appear in

the spring. The flowers being now set, and new growths starting from the base of the plants, they should therefore be treated in the manner described above. This plant succeeds in a basket suspended from the roof in the Cattleya-house, in a compost consisting of equal parts of turfy peat and sphagnum over good drainage.

Zygopetalum Perrenondii, Z. crinito-Gautieri, Zygo-Colax Wiganianum are three very attractive hybrids for flowering during the spring months, the flower-spikes of which are produced simultaneously with the young growths. From the base of the latter new roots are now being sent forth, therefore making the present the most suitable time to repot any plants that may require fresh compost, providing the flower-spikes have been first removed. These plants have a great dislike to root disturbance, and must not be shifted unless it is really necessary. The same particulars as to compost, position, water, &c., advised in a former Calendar for Zygopetalums, will meet the requirements of these plants.

THE KITCHEN GARDEN.

By John Fleming, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Runner Beans.—Let another sowing be made, this time in trenches prepared as for Celery. Sow the seeds quincunx-fashion at 6 inches apart, and covering them to a depth of about 2 inches. Plants that are coming through the soil should be frequently sprinkled with fresh lime and wood-ashes when wet with dew, so as to deter the slugs from devouring the leaves. If frost should threaten, apply some light sort of protective material in the evening. Sowings should be made about once a fortnight of French Beans, and the earliest sowing protected with sprays of the Spruce Fir stuck in on each side of the rows.

Broad Beans.—As soon as a sufficient number of flowers have shown as will, when set, afford a crop of pods, let the tips of the stems be pinched or cut off; and in the event of the black-aphis infesting the points, apply, by means of a syringe, soft-soap, 2 ounces mixed with 1 gallon of water. Let advancing plants be moulded up betimes, and another sowing be made on deep soil in a cool spot. The Broad Windsor types are excellent for sowing at this date. On light or shallow soils, sow in prepared trenches.

Endive.—Small sowings may be made at fortnightly intervals till the end of August, sowing the Broad-leaved Batavian in drills drawn at 18 inches apart, and thin the plants to 15 inches apart in the rows, the curled-leaved varieties in drills drawn 12 inches apart, thinning the plants to 1 foot.

New Zealand Spinach, Tetragonia expansa.—If the seeds of this useful plant were sown in pots as advised in a previous Calendar, and the plants have been well hardened off, they may now be planted in a sunny spot at 3 feet apart. The growth of the plant is considerable, covering the allotted space quickly. It is necessary, on account of the abundant leafage, to afford a large quantity of water when the weather is dry.

Cardoons.—Plants raised from seeds sown in warmth and nursed in cold frames, if hardened off, may now be planted in trenches prepared as for Celery, at a distance of 15 inches apart. Afford water when planted, and overhead sprinklings frequently, if the weather be dry, so as to encourage growth. The plant, to do it well, should receive large quantities of water whilst making its growth. Plants raised from seeds sown in the trenches should be thinned when large enough to handle, and the soil stirred with the hoe.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Bouvardias should now be cultivated in a pit, where just a little heat may be employed at night. Keep them near the glass, and syringe the plants each morning, and again at closing time, about 3.30 P.M. Pinch any very strong shoots, and if the plants are required to flower in winter, continue to top the shoots until the beginning of July at the earliest; but the variety Humboldti corymbiflora should not be pinched after midsummer. In repotting young stock, use rich loam, half-decayed leaf-soil, and sand, adding a 7-inch potful of bone-meal to every wheelbarrow-load. Should the loam be at all heavy, a little peat may be added.

Acalyphas may still be propagated in a warm case, taking off the tops of the older plants rather than side-shoots. This remark applies particularly to A. hispida Sanderi, a plant that requires good cultivation. Its drooping crimson racemes are strikingly ornamental. This plant may be stopped when about 3 or 4 inches high, and by taking up a number of shoots, good specimens may be grown in 10-inch pots. For the decoration of the dinner-table, where they show to much advantage, the plants are best grown on single stems, and 7-inch pots are then quite large enough. Use a similar compost to that recommended for Bouvardias, and encourage the plants by affording a stimulant twice a week when in active growth. Keep the foliage clean by sponging with soapy water; overhead syringings are liable to cause the racemes to decay.

Medinilla magnifica is not grown in so many gardens now as formerly, yet it is a most interesting plant when laden with its large pendulous racemes of rosy-pink flowers; and providing the syringe be not used, the flowers will last a good time in bloom. Any pruning that is necessary should be done as soon as the flowers have dropped. When growth has re-commenced, repotting may be done if such be necessary, using a mixture of loam and peat in equal parts, together with charcoal and sand. The plant requires much heat and moisture whilst making its growth, but afterwards it should be afforded a long rest in an intermediate temperature. Introduce it into a brisk moist heat again early in spring, and it will flower satisfactorily. Young shoots 3 or 4 inches long with a heel of old wood attached will soon make roots if plunged in a bottom heat of 80°.

Carnations rooted this spring should be put into a cold frame, and kept near to the glass and free from aphis. Pinch out the point when the growth is about 4 inches high, and again in about a month or six weeks' time. Repot the plants into 5 or 6-inch pots when fit; make the soil firm, using fibrous loam two parts, rotten manure one part, and leaf-soil one part, with river sand. Put a stake to each plant, and keep the plants free from aphis. Souvenir de la Malmaison varieties coming into flower should be lightly shaded during the brightest part of the day, and be afforded a rather dry atmosphere, especially on wet or dull days.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Bedding out.—Provided that the weather is mild, and the soil not too moist, a commencement should be made during the coming week to get many of the less tender plants put out into the beds and borders. There is, however, still some risk of frost injuring them, and protecting materials should be kept in readiness to place over them when required, although properly hardened-off plants are fairly safe when the third week of May is passed. Such tender subjects as Coleus, Begonias, Alternantheras, Iresines, Lantanas, &c., should not be planted till June, and where the summer garden is not very extensive, it might be advisable to allow a week or two to elapse between the two sets of plants. Where there is any choice in the matter, the shadier positions should be given to Fuchsias, Begonias, Mimulus, and Lobelia cardinalis, all of which enjoy a cool and rich soil, which will not be affected by drought.

Roses.—There are several of the Tortrix family destructive to Roses; a common one is T. pyrastrana, whose caterpillar spins two leaves together and makes its abode therein. The Buff-Tip moth, Pygera bucephala, is also destructive; the caterpillar is slightly hairy, ground colour yellow, marked with black. The Lackey moth, Bombyx Neustria, a most voracious caterpillar, greyish-black, striped longitudinally with orange and blue; and the Palmer worm, Liparis auriflua, hairy, black, with humps on two segments of the body. The caterpillars of these moths should be sought for almost daily and killed. Disbudding should be carried out pretty severely, leaving only the best placed strong shoots. No universal law can be laid down for disbudding, except that the centres of the plants, whether standard or bush, should be left open. If mildew appears, spray with a solution of soft-soap at the rate of ½-oz. to the gallon of soft water; this is efficacious against aphis.

Liliums of the late-flowering species are now on the point of making stem-roots, a stage at which some of the old surface-soil should be replaced with a mixture of loam, leaf-mould, sand, and a small quantity of decayed manure, which should come high enough up the stems to just cover the portion from which the roots will come.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Peach and Nectarine-trees.—If disbudding is now finished, the border should be lightly pointed over, but it will be prudent to apply no mulch before the soil has got warm, the temperature being several degrees below the normal for this time of the year. Take advantage of warm days to engine the trees about 4 P.M. with tepid water, and if aphis is still troublesome use quassia extract or other insecticide till the trees are cleared of them.

Apricot-trees.—The crop will be a poor one this year hereabouts, for though the blossoms were abundant, the frosts in April destroyed the major part of the fruits, and in many cases even the leaves of the trees are falling. The points of the young shoots were likewise injured, and as yet growth is very small.

Pyramidal and Bush Apples and Pears.—On trees which had their flowers injured by frost, and have failed to open, let these be removed forthwith, and afterwards use the garden-engine and some approved insecticide in cleansing the remains of blossoms, and all traces of aphis from the trees. Freed from these the trees may soon develop healthy growth, and recover from the effects of the frost.

Morello Cherries, &c.—As the trees pass out of flower let them be thoroughly cleansed with the syringe and Quassia-water. This will ward off an attack of the troublesome black aphis, which, if once allowed to get a footing on the shoots, is very difficult to get rid of. If the pest infests the points of the shoots of the Sweet Cherries, let the points be dipped in a vessel containing weak tobacco-water; and as the older leaves are not liable to attack, it is not necessary to syringe a tree all over with the mixture.

THE APIARY.

By Expert.

The Week's Work.—Very little can be done in the apiary in wet weather, but the weak and the strong stocks may be gently fed, in the case of the latter only when their stores are very low. This is all-important just now, as strong stocks which come out well at the end of this month will soon repay the bee-farmer for his expense and trouble. In many cases, I fear bees will not be fit for storing surplus honey, whether in sections or shallow frames, next month, unless the weather changes for the better, and stocks are fed. In placing feeders, care should be taken to place these properly, allowing the bees to get the syrup through the proper channel or holes, and not allowed to creep up to the sides. The feeder should be placed on as near a level as possible, or the syrup will run out. Hives should be gently approached, and not treated roughly, tilting them slightly forward, and avoiding all jerky movements. They are rather troublesome just now so far as robbing goes, particularly those which are breeding rapidly, and no supplies coming in. The weaker stocks will be attacked, and very soon robbed clean out. As soon as bees are seen hovering around any hive, as if uncertain whether to go in or not, they intend to rob, if they have not commenced so to do, in which case the carbolic cloth should be used, and the entrance made narrower, so that one bee only can pass in at a time; if this does not stop them, close up the hive entirely for a short time.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	MAY 25	Annual Meeting (7 P.M.) and Dinner (7.30 P.M.) of Kew Guild, at Holborn Restaurant. Linnean Society. Anniversary Meeting at 3 P.M. Surveyors' Institute Annual General Meeting at 3 P.M.
TUESDAY,	MAY 26	Royal Horticultural Society's Show in the Temple Gardens, Thames Embankment (three days)
WEDNESDAY,	MAY 27	Royal Botanic Society Meeting. Bath and West and Southern Counties Show at Bristol (five days).
THURSDAY,	MAY 28	Irish Gardeners' Association Meeting.
FRIDAY,	MAY 29	Royal Botanic Society Lecture.

SALES FOR THE WEEK.

MONDAY, MAY 25—
Orchids in flower and bud, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.—Second annual sale of Bedding and other Plants, at The Park Nursery, Stanmore, by Protheroe & Morris, at 12.

WEDNESDAY, MAY 27—
Palms, Plants, Ocraniums, Lilies, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

THURSDAY, MAY 28—
Established Orchids, and 3,000 Odontoglossum crispum, at 67 & 68, Cheapside, by Protheroe & Morris, at 12.30.

FRIDAY, MAY 29—
Imported and Established Orchids. Phalænopsis amabilis var. Rimestadtiana, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.—Clearance Sale of Ferns, &c., at Messrs. Stroud Bros., Nursery, 182, Green Lanes, N., by Protheroe & Morris, at 1.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick—55.9.

ACTUAL TEMPERATURES:—
LONDON.—*May* 20 (6 P.M.): Max. 66; Min. 48°.
May 21 (Noon): fine.
PROVINCES.—*May* 20 (6 P.M.): Max. 62°, Home Counties; Min. 45°, Shetland.

Reminiscences of Ghent.

Now that the prizes are all awarded, the groups broken up, the plants dispersed, the halls swept, and the annexes removed; now that the lights are all out, the musicians gone home, the banquetting-halls empty, and the jurors dispersed to every corner of Europe, it might be thought that our good friends at Ghent would take some rest, and review with complacency the success of their recent efforts. This success was the more remarkable as it was won in the teeth of adverse circumstances. The weather was abominable. For those who want to increase their knowledge of French adjectives the reports and letters of our Belgian friends would furnish ample means. What the corresponding words look like in Flemish we hardly dare to think.

A photograph before us shows the arrival of the KING, a crowd of persons awaiting, whose umbrellas are so thickly covered with snow that the effect is that of a field of Broccoli on a large scale. After all this, as we have said, a period of repose might have been expected. Such relaxation, however, does not commend itself to the officials of the Society. Scarcely were the doors closed to the public than a meeting was held—to reciprocate congratulations. No such thing! It was held to discuss results, to consider weak points, to see in what directions amendments for the future could be made, in fact, to prepare for the next Quinquennial!

The labour, the skill, the forethought required to organise an exhibition of this magnitude can only be adequately estimated by those who have taken part in similar undertakings. Fancy what it must have been to transport and arrange in their proper places in such detestable weather, the myriads of plants exhibited, most of them too tender to bear with impunity the rigours of a Flemish winter. It was very gratifying to the friends of the late EDWARD PYNAERT, to find the son following in the traces of his father, and warm were the congratulations offered to M. CHARLES PYNAERT on the success of his efforts. The presence of another son, M. LEON PYNAERT, home from the Congo, was also hailed with pleasure.

Much unnecessary trouble is given on these occasions by those, who, having announced their intention to be present are inconsiderate enough not to make known beforehand their inability to take part in the labours of the jury. This remissness when due to carelessness is wholly inexcusable. The difficulty at the last moment of finding a suitable "understudy," in a particular section of the jury, leads to delay and confusion for which the organisers of the exhibition are not responsible, though the trouble and annoyance fall to their share.

A certain, nay, a considerable amount of similarity necessarily occurs between one exhibition and another, even after an interval of five years. The Temple Shows are somewhat monotonous to those who see them year after year. It must be so from force of circumstances; but at Ghent, if one will take the trouble to look back, he will see that the general trend of horticulture, the whims and fashions of the day, have been faithfully represented at successive meetings. "New plants," using the term in the sense in which it is used in schedules, occupy, on the one hand, a less important position than they did once; hybrid plants raised by the art of the gardener are, on the other hand, more abundant; whilst Orchids occupy the place that New Holland plants and "stove and greenhouse plants" generally did years ago. Cape Heaths have gone, Camellias and show Pelargoniums are scarcely met with; succulents are not in favour. Decorative plants for the mansion are in large demand, but the demand is limited to some half-dozen species of Palms to two or three species of Araucaria; and as for flowering plants, if they are not suitable for the supply of "cut flowers," they are, always excepting Orchids, held but in light esteem.

All these phases of fancy have been illustrated at successive quinquennials at Ghent.

In this country at the present time there is a large demand for "alpine plants," using that term in a comprehensive sense. Our fortnightly exhibitions show this very markedly. The plants that the nurserymen of the last generation threw away as unsaleable are now in high favour, and their numbers are reinforced by species not known in the gardens of our forefathers. This particular fancy was well illustrated at Ghent in the rockery exhibited by M. BUYSSENS, of Vilvorde.

In one most important particular Ghent has marched with the times. The officials of this great Society recognise that in horticulture, as in most other matters, progress is to be looked for by the application to practice of the lessons of science. The scientific department of the exhibition is not that which appeals most to the casual visitor, or even to the average gardener; but to the thoughtful and broad-minded man of business who has to look ahead, the importance of scientific research, and the necessity of making use of its teachings, are becoming so apparent, that at the next Quinquennial we may fairly look forward to an even greater development in this direction. With rare felicity of illustration, the President pointed out many of the most recent discoveries of science, and showed their application to practical horticulture. The scientific man rejoices in any increase of knowledge, in every manifestation of the true and the beautiful; the man of business, looking at the matter commercially, will find that science will pay both by extending production and by lessening its cost. We are terribly apathetic in this matter in this country, as a glance at the literature which comes to us from the United States or Germany suffices to show. Our good friends at Ghent have set us an example we shall do well to follow.

There is one phase which never varies at Ghent: the cordiality of the welcome afforded to the visitors remains at the maximum. So should, so does, our gratitude.

ROYAL HORTICULTURAL SOCIETY: FRUIT SHOW AT CHISWICK, SEPTEMBER 29, 1903.—Exhibitors are requested to notice that Class 52 is an open class, and not confined to amateurs. The schedule can be obtained by sending a postage stamp to the Royal Horticultural Society's Office, 117, Victoria Street, S.W.

OPENING OF KEW BRIDGE.—Many of our readers who are now living in distant parts of the Empire have an intimate knowledge of Kew, and will be interested in the Royal function on Wednesday last of opening the new handsome bridge over the Thames. Those who were at Kew even a few years ago, will remember that the old narrow bridge, with its steep inclines, was deemed unsatisfactory, and at last, by the united efforts of the Middlesex and Surrey County Councils, it has been replaced by a really handsome structure, designed by Sir J. WOLFE BARRY, and erected at a cost of £250,000. Their Majesties, the KING and QUEEN, who drove some fourteen miles in semi-state, met with a most loyal reception, the route being ablaze with flags and streamers of every kind. The decoration that was most agreeable to ourselves was that upon the well-known fountain in the centre of the roadway at the tram terminus, just opposite the Kew Bridge Station, and which was adorned very effectively with fine Palms, ornamental foliage plants and flowers. The bridge will be officially known as King Edward VII., but the term "Kew Bridge" will die hard.

MR. J. D. PAWLE.—The announcement of the death of this gentleman, at Reigate, will be received with great regret by all rosarians. He was enthusiastically attached to the Rose, and we may say to Rose-lovers also. His sympathies were wide, and his judgment to be depended upon. He was a member of the Floral Com-

mittee, a vice-president of the National Rose Society, and the founder of various local societies, who were represented at his funeral. Mr. Pawle was in his eighty-first year.

Robert Fenn, V.M.H.—All honour to the new Victoria Medallist. Among practical horticulturists, there is none more worthy of the honour than he. By patient, long continued experiments he has not only set practical gardeners an example of what they should do, and how they should do it, but he has himself achieved actual results, the memory of which must compensate him for long hours of labour. It must be a satisfaction to the veteran to feel that he is not forgotten, and that his work is appreciated.

Dr. M. C. Cooke.—We understand that the Gold Medal of the Linnean Society, awarded each year to a botanist alternately with a zoologist, is this year to be conferred on our old correspondent, the friend of Berkeley, indefatigable as a worker, and unwearying in his desire to be useful to his fellows.

Mr. Peter Barr, who has been travelling about the world for several years past, and whose interesting letters from South Africa have appeared recently in these columns, was present at the Drill Hall on Tuesday last, and received the congratulations of numerous friends. He seemed younger than when he went away.

The Gardeners' Reception and Dinner, Holborn Restaurant, London (Tuesday, September 29, 1903): Leopold de Rothschild, Esq., will preside. The following circular to the number of 400 have been sent out to representative gardeners in Great Britain and Ireland:—"You have probably seen in the gardening papers mention of a proposal to arrange a Reception and Dinner in London, for gardeners specially, and other horticulturists in general, on the first day, September 29, of the great Fruit and Vegetable Exhibition of the Royal Horticultural Society at Chiswick. This show may offer a last opportunity to see the old gardens. With a view to popularise this proposal, and to render the function a complete success, the kindly co-operation and assistance of the leading gardeners and the Horticultural trade of Great Britain and Ireland are cordially invited. We beg, therefore, to ask you to be pleased to act as a provincial steward for your locality, and to use your special influence in securing the sale of tickets, and in promoting interest generally in the dinner and gathering. Tickets will be 5s. each; ordinary morning dress worn. Every effort will be made to render this reception and festival one of exceptional enjoyment and gratification, and it is hoped it will lead to the kindliest social intercourse amongst all attending. The reception will commence at 6.30 p.m., and the dinner in the famous King's Hall at 7 p.m. Please to kindly favour the Secretary with, we trust, an early and a favourable reply. In all cases cheques or postal orders, payable to Jas. Hudson, must accompany applications. Signed, Owen Thomas, V.M.H., Chairman; James Hudson, V.M.H., Treasurer; Alexander Dean, Secretary, 62, Richmond Road, Kingston-on-Thames."

The National Horticultural Hall.—Messrs. Thos. Rivers & Son, of Sawbridgeworth, have promised a contribution of £50 towards the building fund.

Strawberries.—Some correspondents have lately sent us specimens of Strawberries which have nearly reached maturity, when growth ceases, and the pulp begins to dry up superficially. No fungus is visible, nor is any information given as to cultivation and treatment. The variety is in one case President, and the whole batch has gone bad in this way. Can it be from the use of manure-water over the fruits?

Mr. M. Gleeson, who for the last twelve years has had charge of the estate and gardens at The Warren House, Stanmore, the property of C. E. Keyser, Esq., and now occupied by H. L. Bischoffsheim, Esq., has, we understand, resigned, and will be leaving shortly.

Cork Greater International Exhibition.—The exhibition is to be held on the site of that of last year, beautifully situated in the valley of the Lee, and it will be connected with the City by means of an excellent tramway service. Last year's exhibition was visited by more than one and a half million of people, and the net proceeds amounted to about £10,000. The main object of the exhibition is the promotion of Irish industries. All the buildings erected for the 1902 exhibition remain standing, and others have been erected. The gardens are as yet in an unfinished state, but the Committee have still plenty of time before them, as the Lord-Lieutenant will not declare the exhibition open until the 28th inst. A scheme of lectures on horticulture and other subjects interesting to ladies was projected at a largely-attended meeting of the Ladies' Executive Committee, held on Saturday, May 16, the Countess of Bandon presiding. The following ladies have already promised to give lectures:—Miss Powell, Hon. Secretary of the Women's International Horticultural Union, Guildford, Surrey; Miss Constance Law, of the Hill Market Garden, Glasnevin, Dublin; and Miss Langley, of the Horticultural College, Swanley.

Arundinaria Simoni.—Mr. Anthony Waterer obligingly sends us flowers of this species, now growing in his nursery at Knap Hill, near Woking.

The Horticultural Club.—The usual monthly dinner was held at the Windsor Hotel on Tuesday, the 19th inst., Mr. F. G. Lloyd presiding, and a good number of members and guests being present. The Rev. Mr. Pemberton subsequently read a very interesting paper on the subject of "Rose Exhibition," advocating the exhibition of blooms in vases in lieu of the formal boxes, arranged with mathematical accuracy, which do so much to detract from the natural charm of the shows. An animated discussion followed, which was participated in by such competent authorities in the Rose world as Messrs. Mawley, Wilks, Cant, Paul, Burnside, Waterer, Bunyard, Gordon, Pearson, and Shea. Mr. Mawley, who opened the discussion as representing the National Rose Society, pointed out that first and foremost among the Society's objects was the fostering of the exhibition of the very finest individual flowers which could be produced, so that the standard of perfection should be raised to higher and higher levels. That was the primary object, and the formal box system had really been evolved to fit the needs of such special exhibits, and to facilitate judgment of the essential points of quality. It had been suggested that the Trophy class should be extended to embrace a larger number of kinds; but, as Mr. F. Cant pointed out, the difficulty of judging large mixed exhibits on these lines would be such that he for one would not like to be saddled with the task. The question of long stalks versus short stalks was discussed at length, and although long stalked Roses in vases were felt to be the right thing for domestic ornamentation, exhibition on the same lines involved greater expense in carriage, owing to the larger packages required, the shorter duration of the flowers in hot and crowded tents, owing to the greater strain induced by the increased transpiration of the foliage; and finally, for the exhibitor to be bound to cut with long stalks would rob his plants terribly, and handicap him very considerably in the course of the exhibition season. Mr. Waterer advocated two days Rose shows on the principle of separate schedules for each day, but, as Mr. Wilks pointed out, this was hardly likely to work well, most exhibitors would regard it as playing second fiddle to be placed on the second day, and the show Committee being but human, could hardly be expected not to put the best forward on the first day, thus justifying the second day exhibitors in complaining of invidious treatment. Mr. C. Pearson advocated better ventilation of exhibition tents as a partial remedy for some of the difficulties, and this is a point which certainly is open to reform. An autumn Rose show was strongly advocated by Mr. Wilks and others, as plenty of good material is then available, and the temperature is more favourable to the exhibitors. Allusions were made to the immense improvements introduced into Chrysanthemum shows by the introduction of the vase system of showing, but in this connection it is clear that the flowers, apart from their much longer duration than the Rose, are also favoured by the cooler seasonal conditions as compared with summer exhibits.

The Devon Daffodil and Spring Flower Show.—Under the presidency of the Earl of Morley, who takes a keen interest in the culture of rare flowering shrubs and plants on his estates in the south-west, a society has recently been formed with the object of holding an annual spring show of Daffodils and other flowers in the spacious Guildhall at Plymouth. Mr. G. Soltau-Symons, whose interesting gardens at Chaddlewood, Plympton, have been illustrated in volume xxix., figs. 11, 19, 28, 29, 30, 33, is chairman of a strong committee, whose endeavour it will be to bring together in the Guildhall the best flowers in the United Kingdom. The show will probably be held a few days later than that of the Cornwall Daffodil and Spring Flower Society at Truro, with which it will in no way clash, and it is hoped that exhibitors at the latter show will also send their flowers to Plymouth. It is too early as yet to speak of prospects, but it is to be hoped that residents in the West of England, and especially in Devonshire, will rally round the Committee and enable them to make their first show a success.

A Precocious Rose.—Mr. W. Denning, of Hampton, has sent us a seedling Rose plant in flower in a pot. It is a chance seedling that has germinated since November last under the staging in a glasshouse; the plant is therefore less than six months old, and has still its seed-leaves intact. Our readers may remember an illustration in the *Gardeners' Chronicle* for June 1, 1895, of plants in Messrs. Vilmorin, Andrieux & Co.'s nursery, which flowered when three months old.

Dr. Harry Bolus.—It is matter for satisfaction to learn, as we do from the pages of the *Gardening World*, that the degree of Doctor of Science (*honoris causâ*) has been conferred by the Cape University on this distinguished botanist. His contribution to the knowledge of the Cape flora generally, and specially of the Orchids of that region, are not only valuable to botanists, but to horticulturists also. We look to him for a much needed monograph on the Cape Heaths.

The Warty Disease of Potatos.—We have received the following note from Dr. Magnus, Berlin:—I have only this moment read that Dr. M. C. Cooke has stated in the *Gardeners' Chronicle* (1903, p. 187) that I have identified the fungus in the warts of the Potatos as Urophlyctis leproides (Trab.), P. Magnus, which causes the Beetroot-tumours; but that is a mistake on the part of Dr. Cooke. I have never seen the warty Potatos, which I regret very much, and of course I have written nothing about them. But the description given by R. Schiberszky in *Berichte der Deutschen Botanischen Gesellschaft*, vol. xiv. (1896), pp. 36, 37;

and the description and figures given by Mr. M. C. POTTER in the *Journal of the Board of Agriculture*, vol. ix., December, 1902, p. 320, plate iv., seem to me to show that the fungus of the warty Potato-disease is entirely different from Urophlyctis leproides (Trab.) in the Beetroot-tumours, and belongs apparently to another genus, called by SCHILBERSZKY Chrysophlyctis, with the species Chrys. endobiotica. I should be very glad to receive material of the warty Potato-disease, in order that I may study it.

ROSE SHOW AT ANGERS.—We hear that the seventh Congress of the Société Française des Rosiéristes will be opened at Angers on Friday, June 13, under the presidency of M. VIGER, President of the Société Nationale d'Horticulture de France. This Congress, arranged by the Angers Horticultural Society, will coincide with a Rose and general flower show, and will be held in the Hôtel de Ville. The following subjects are proposed for discussion:—1. Classification. 2. Synonymy. 3. Hybridising. 4. Best varieties of Roses for Western France. 5. Cultivation of standard Roses, and best sorts to be so grown. 6. Question as to how to assure to the raisers of novelties exclusive proprietorship of their results for a definite period. 7. On the varieties of Bengal Roses available. 8. On the varieties of Ile-Bourbon Roses available. 9. Should Rosa Hermosa be classed as a Bengal or as an Ile-de-Bourbon Rose? 10. The best varieties of Rosa polyantha. 11. Best novelties of 1898 and 1899. Those intending to take part in the Conference should communicate, before May 31, with M. O. MEYRAN, secretary, 59, Grande Rue de la Croix Rousse, Lyon.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The Secretary informs us that he has received the following communication:—

> "Marlborough House, Pall Mall, May 15, 1903.
> SIR,—I am desired by the Prince of Wales to forward you the enclosed cheque for £20, as a contribution from His Royal Highness towards the funds of the Gardeners' Royal Benevolent Institution. I am also desired to add that His Royal Highness hopes that your annual festival in aid of the funds of this Charity will meet with the success which it so fully deserves.
> I am, Sir, your obedient servant,
> (Signed) W. CARRINGTON, Lieut.-Colonel,
> Comptroller and Treasurer to
> H. R. H. the Prince of Wales."

EXHIBITION SCHEDULES: — THE NATIONAL ROSE SOCIETY has issued its annual report, and schedules of prizes to be offered at the two shows which will be held under its auspices this season. The first will take place in the Inner Temple Gardens, Thames Embankment, on July 1 (Wednesday), and the second in St. Andrew's Hall, Glasgow, on July 15 (Wednesday). We notice that in a few more classes, the Roses, including exhibition varieties, will be arranged in vases, and the tendency is evidently in the right direction; but there will still be far too many boxes, and we could wish that those members of the Society who are working for this end, had met with greater success. Rose shows will be more popular when those responsible for them have contrived to introduce into them some novelty, and more satisfying effects in arrangement. The poor attendance at the last Temple Rose Show was no doubt largely due to the illness of the KING, and we heartily hope that this year the weather may be good, and the event a greater success than heretofore. We are glad to see that there are now nearly 900 members. May the rather small reserve fund be considerably augmented during the present season. The courteous Secretary is our valued correspondent, Mr. EDWARD MAWLEY, Rosebank, Berkhamsted.

THE WALTON-ON-THAMES AND DISTRICT ROSE SOCIETY will hold their annual exhibition in the grounds of The Chestnuts, Walton-on-Thames, on Saturday, July 4, 1903. Separate classes open. There are open classes and others for amateurs residing within 5 miles of Walton Station. The hon. secretary is Mr. A. SAVIDGE, Ingleside, Walton-on-Thames.

THE CHRYSANTHEMUM SHOW AT BIRMINGHAM, held under the auspices of the Birmingham and Midland Counties Chrysanthemum, is always a very large and important exhibition, where some of the finest Chrysanthemum blooms may be seen, and in addition a first-rate display of fruits and vegetables. The schedule for the exhibition to be held on November 10, 11, and 12 shows that an increased number of blooms will be shown in vases; indeed, the incurveds only are excepted. The system is thus spreading. A copy of the schedule may be obtained from Mr. J. HUGHES, 140, High Street, Harborne.

THE NATIONAL CHRYSANTHEMUM SOCIETY'S schedule of prizes, reminds us that the exhibitions next autumn will be held at the Crystal Palace, on the following dates: October 6, 7; November 10, 11, 12, and December 8 and 9. At the November show the popular class for sixty blooms in twelve varieties, shown in vases, will be continued, and there will be flowers displayed in vases at each of the exhibitions; but the boards have not yet been quite abolished, as they should be. The displays of Chrysanthemum plants and blooms in class 1, at the November exhibition will, we hope, furnish some novel effect in grouping. At any rate, as the exhibits will be arranged upon spaces of 300 superficial feet, should be something quite different to previous ones, which really screened the large fountains in the Aquarium at Westminster. The secretary is Mr. R. DEAN, Ranelagh Road, Ealing.

THE NATIONAL SOCIETY OF HORTICULTURE OF FRANCE.—Madame WELLS has, according to a statement in the *Revue Horticole*, bequeathed the sum of 800,000 francs—about £32,000—to the Paris Horticultural Society for the purposes of founding, on her property, a school of horticulture. The name looks English, and we can only hope that some English lady or gentleman will follow the example here, and ensure the completion of a national horticultural hall adequate for the purposes for which it is intended. With a proper headquarters and a renovated Chiswick, our Society might pursue its useful career untrammelled till it became time to give up the lease at Chiswick.

"THE HANDYMAN'S BOOK."—This is a useful publication, to be completed in twelve parts, dealing with the tools, materials, and processes employed in carpentry, joinery, and cabinet-work, with numerous illustrations and working drawings. Part 7 deals with trellis-work, porches, and summer-houses, with garden seats, rustic carpentry, sheds, tool-houses and workshops, garden frames, window conservatories, and greenhouses; so that gardeners will find it well worth study. It is edited by PAUL N. HASLUCK, and published by CASSELL & Co., London, Paris, New York, and Melbourne.

"ALPINE FLOWERS FOR GARDENS, ROCK WALL, MARSH PLANTS AND MOUNTAIN SHRUBS."—By W. ROBINSON, third edition, revised; illustrated. (London: JOHN MURRAY, Albemarle Street.) Little need be said of a book that has had over thirty years of popularity. "The plants in this book are not treated in any one or regular way, for the reason that they differ so much in value. In nature, all plants may be said to be of equal value, but in gardening the difference in their values is enormous, both in degree and in every other way. Therefore, in a purely garden book like this, the only helpful way is to treat plants in some relation to their value in the garden. A great many plants, also, are truly alpine, but have little or no use or beauty in the garden, and these are not included in this book." The present edition is dedicated by the author to the memory of the late JAMES BACKHOUSE of York.

THE BATTLE OF SHREWSBURY.—It is proposed to celebrate in Shrewsbury next July the five-hundredth anniversary of the battle of Shrewsbury. The projected programme mentions special services in the Abbey Church, lectures, excursions, Shakespearian performances, and a revival of some old English games. A large attendance is expected, and subscriptions are invited. Should any surplus remain after the payment of expenses, it is proposed to place a suitable memorial in Battlefield Church or Churchyard, and to give the balance to the Salop Infirmary. Communications should be addressed to Messrs. ADNITT & NAUNTON, The Square, Shrewsbury, the well-known secretaries of the Floral Fête.

SPHAGNUM-MOSS.—In this plant we have an almost indispensable material for the cultivation of epiphytal Orchids, Droseras, Sarracenias, and some species of Aroids. It is met with in the living state in the New Forest, the Welch Mountains, the Lake Country, and other wild and uncultivated parts of these Islands. We have lately received from the "Bala Sphagnum Supply Store," Trawsfynydd, Corwen, N. Wales, Mr. ALFRED JOHNSON, manager, a sample of live sphaguum, clean, and free from every sort of impurity, and fit for immediate use.

COMMEMORATIVE TREES.—We learn from *The Jardin*, that during his stay in Paris, the King planted a Red-flowered Horse-Chestnut, in the gardens of the British Embassy. Two silver spades of rare elegance were used on the occasion.

VITIS INDICA.—Mr. BUYSMANN, of Middelburg, Holland, tells us that a plant of this species has resisted the frost of this winter in the open air in Holland. It was raised from seed received from Saigon in 1902, and is now 20 cent. high (8 inches). V. indica, of Linnæus, is stated in the *Flora of British India*, to be native to the western peninsula of India, from Concan southwards.

M. D. BOIS, who has been on a botanical expedition to Tonquin, has returned to Paris. We may anticipate some very interesting results from his mission.

"ALPINE FLORA."—Mrs. A. GEPP, formerly better known in botanical circles as Miss BARTON, has translated Dr. JULIUS HOFFMANN'S *Alpine Flora for Tourists and Amateur Botanists*. As the tourist season will shortly be beginning, we hasten to call the attention of plant-lovers to this volume, which is small enough to go readily into the portmanteau. Of course, only a selection of the plants could be dealt with, but the choice has been made with judgment, the descriptions, so far as we have tested them, are accurate, and the coloured illustrations, though necessarily on a small scale, are fresh, life-like, and generally excellent. We strongly recommend the little book to the notice of amateurs and beginners. Messrs. LONGMAN & Co. are the publishers.

MELOCACTUS.—The late Prof. SURINGAR, of Leiden, was engaged at the time of his death in the preparation of an illustrated monograph of the genus Melocactus, one part of which was published in 1897. His son, M. VALCKENIES SURINGAR, having studied the materials accumulated by his father, with other documents and specimens which have come to hand since, proposes to continue the work, and to publish annually, at the price of five florins each, two parts containing eight plates, one of which is coloured. The work will be published by subscription by the firm of E. J. BRILL, Leiden Holland.

The Sandhills of North Lancashire.—Mr. Charles Bailey, in the *Memoirs of the Manchester Literary Society*, gives an account of the vegetation of the sandhills at St. Anne's. The number of introduced plants is remarkable. In the present paper, Mr. Bailey discusses in a very interesting way the presence and distribution of four of the most conspicuous, viz., Œnothera biennis, Sisymbrium pannonicum, Ambrosia artemisiæfolia, and Vicia villosa. Photographic representations are given of some of these plants.

"The Forest Flora of New South Wales."—We have received a copy of the first part of this publication, prepared by Mr. J. H. Maiden, the Government botanist. The object is "to depict the botanical characters of each tree, and to furnish all the available information in regard to it." In a comparatively new country like New South Wales, the importance of such a work, economically as well as scientifically, can hardly be over-estimated. The botanical description, nomenclature, synonymy, uses, geographical distribution, and propagation of each tree are given, and lithographic plates showing a flowering branch with the requisite floral details, are provided. The plants figured in this first part are Grevillea robusta, Ficus rubiginosa, Syncarpia laurifolia, Pittosporum phillyreoides. We shall welcome the successive parts of this useful publication.

"County Court Practice Made Easy, or Debt-collection Simplified."—This is a little book published by a soliciter with a view to assist the business man, the soliciter's clerk, or the inexperienced solicitor, in the methods of procedure in what is called the "most annoying and unfathomable technicality and chaos" which characterise the County Courts. Having skimmed the book, we should recommend sufferers not to venture into these Courts at all; or if they must do so, then to consult their soliciter, and leave everything to him.

Cocoanut Palms in Ceylon.—It is stated, on good authority, that the product of Cocoanuts in Ceylon is 800 millions per annum, of which nearly half are sent away in the husk, in the shell, as oil after desiccation, and the remainder used for various purposes by the people of the country. Some 700,000 acres are planted with the Palm, and this acreage, at seventy-five trees to the acre, and twenty nuts to the tree, should yield 1,050 millions of nuts; but a large number of the trees are reserved for toddy-drawing, and the distillation of the spirit called arak.

Publications Received.—Board of Agriculture, *Preservation of Eggs*, Leaflet No. 83.—*The Selborne Society: Seventeenth Annual Report.* Satisfactory, and showing progress—Essex County Council, Technical Instruction Committee, *Report and Handbook.* During the past session there has been a very remarkable increase in the work connected with agricultural analysis: field experiments have proved quite satisfactory.—*Agricultural Bulletin of the Straits and Federated Malay States*, annary. Contents: Para Rubber in the Botanic Garden, Singapore: Heveas, Rubber in Ceylon, &c.—*Annual Report of the Secretary for Agriculture, Nova Scotia, for 1902.* The season was not remarkable for any great extremes. The crops, with the exception of corn, were above an average, and in some instances were exceptionally good. An exhibition was arranged, and proved successful.—From the University of California: *Report of Work of the Agricultural Experiment Station for* 1898-1901, part II.; also Bulletins from the College of Agriculture: No. 142, *Grasshoppers in California*, by C. W. Woodworth; No. 143. *California Peach-tree Borer*, by C. W. Woodworth: No. 144, *The Peach Worm*, by Warren T. Clarke: No. 145, *The Red Spider of Citrus trees*, by C. W. Woodworth; and No. 146, *New Methods of Grafting and Budding Vines*, by E. H. Twight.—*Les Nouveautés Viticoles*, Mars, No. 10 Bureaux à Macon (Saône et Loire).—*Journal Horticole et Viticole*, Avril (Bordeaux).—*Annual Report of the Secretary for Agriculture, Nova Scotia, for* 1902. This contains the reports of the agricultural societies of the several counties, and the report of the Nova Scotia School of Horticulture, Wolfville, by Prof Sears. The work of the year was, in most respects, very satisfactory, orchard cultivation receiving special attention.—*The Century Book of Gardening*, Parts I. to IV. The Country Life Library, George Newnes, Southampton Street. A beautiful publication, well printed, and handsomely illustrated, sure therefore to attract many admirers.

TWO FINE ECHIUMS.

[See Supplementary Illustration.]

Although rarely met with in cultivation, there are several species of Echium, of a more or less shrubby habit, from the Canary Islands, which will well repay the attention of the careful cultivator. Two of the finest of them are at present in flower in the temperate-house, Kew, viz., E. Wildpreti, which flowered at Kew for the first time some five or six years ago, and was named in compliment to Mr. Wildpret, of Orotava. It forms a short stem, with a dense rosette of whitish, reflexed, linear-lanceolate leaves from 6 to 9 inches long the first year, elongating when about eighteen months old to a length of 2 to 3 ft., tapering from base to apex, and terminated by a dense thyrsus of flowers a foot or more long, each flower being salmon-pink in colour, and more or less campanulate. The whole plant is densely covered with silvery, canescent hairs. It requires to be grown in a rather dry, airy greenhouse with full exposure to sun and light, and should be watered sparingly during the winter months, as it is liable to damp off badly if overwatered. The seeds should be sown in June in light sandy soil in a warm house. Plants grown as above recommended ripen seeds freely.

E. callithyrsum is a very different species from the above, forming a sturdy bush from 3 to 6 feet in height, with numerous thyrsoid inflorescences of bright blue flowers. The leaves are ovate-lanceolate, 6 to 9 ins. long, with prominent veins, and clothed more or less with soft white hairs.

This species is of fairly easy culture, requiring water in abundance during the growing season, which commences in February, and continues to about August, when water should be sparingly given until growth again begins. It produces seeds in abundance in this country. *C. P. Raffill.*

[Our illustration shows a plant of E. fastuosum growing in the garden of Dr. Grabham, Madeira, who kindly furnished the photograph. Our native Echium vulgare is a very splendid species. On one occasion, when clambering down the cliffs near Eastwear Bay, we came upon a little plateau, perhaps about a quarter of an acre in extent, entirely covered with this plant in full bloom. A more magnificent floral spectacle we never beheld. At Dungeness it grows close to the sea, on the pebbly beach overlying alluvial soil, or at any rate where there is no chalk or greensand. Ed.].

COLONIAL NOTES.

ELASTIC THREADS IN EUCALYPTUS LEAVES.

With reference to the letter in your issue of February 7, p. 92, entitled "Elastic Threads in Eucalyptus," I beg to say that there is a small quantity of Caoutchouc in the leaves of (at least) the members of the Corymbosæ section of that genus. It is particularly observable in the widely-distributed E. corymbosa, Sm. It is a common thing to see small boys pull apart the young leaves of that species, and a thin membrane, mainly consisting of Caoutchouc is at once obtained. *J. H. Maiden, Sydney, April* 2, 1903.

Ixora coccinea.

One of the pioneers of Mackay, who is a Government official, who, owing to his duties, had to go south, has a beautiful place, a very emporium of good plants, shrubs, and trees. Among them he possessed a plant of Ixora coccinea, which he knew would stand a good chance of getting destroyed, as the place was to be let; and he was very desirous that the plant should not be lost, so he offered it to me, as he said he thought it would have a chance of being taken care of. It was an old plant, and growing close to a large Acacia. I had doubts about lifting it, and to get it out from among the roots of the Acacia was not an easy matter. I got a bit of ball with it, and planted it in one of the beds of the flower garden. I can remember that peat was considered a necessity for its cultivation. But we have no eat here, so it was planted in the black loam, a canopy erected over it to shade the foliage, and this was kept as wet as possible, and the covering also; but under the direct sun-ray of 176°, a wet sheet is soon dry. In a few weeks I had the satisfaction of seeing it had "taken." It was in full flower when I lifted it, and was 6 feet high; but owing to its erect habit of growth, it was somewhat broom-shaped, but I spread it out a bit, and it is now 4 feet through. Some time ago I cut off its crop of flowers, and it then made fresh wood. Two days ago I mapped it out with string, and counted 228 trusses of fine flowers. It is a grand sight, and considering that it has been so short a time transplanted, it has done well; and I see that, notwithstanding its great crop of flowers, it is breaking out all over. The intense sunshine takes the deep colour out of the flowers, but I mean to put a wire arch over it, which will make a good place in which to show the flowers of such a plant as Hexacentris mysorensis, or something in that way. *D. Buchanan, Mackay, Queensland.*

[Mr. Buchanan was as a young man in the Glasgow Botanic Garden, and in a letter accompanying the Ixora article, he relates how on one occasion the then Curator made the remark: "There is a new gardening paper coming out, to be edited by Dr. Lindley." That was the *Gardeners' Chronicle* of to-day. He is now in his eighty-third year, while the paper is in the sixty-second year of its age. Ed.]

GARDENERS IN CANADA.

A correspondent interested in getting at the truth as to the labour prospects in Canada, especially with reference to gardeners, foresters, &c., has obtained some very interesting information from the Canadian Emigration Commissioner, which he thinks may be of interest to some of our readers. The Commissioner says:—"There are openings almost without number for gardeners of all classes, more especially in the province of Ontario. There is a demand in Ontario at present for thousands of farm, garden, and fruit-growing hands, who are assured of employment under Government auspices at good wages immediately on their arrival in Canada. The Provincial Government of Ontario is taking a very active interest in this subject, and arrivals in Canada will find a Government office at the Union Station from which point they can be despatched to suitable and satisfactory positions in different parts of the province immediately on their arrival. I may say, as you no doubt know, that Ontario is one of the eldest settled provinces in the Dominion, with towns and villages only eight, or ten, or twelve miles apart, quite thickly populated, with every requirement in the way of churches and schools, practically convenient in all country districts. This demand applies not only to single men, who in ordinary circumstances will live in the farmhouses, but to married men with families, having experience in agricultural or gardening life, who would be furnished with a house, garden plot, and other conveniences and perquisites on the farm. There has been such an exodus, so to speak, from the older provinces to Western Canada among the young men that it has left a demand for labour which is practically unprecedented, and in respect to which not only desirable openings, but good wages, are available to new comers. Of course, all are at liberty to apply for information, and the Commissioner's address is, W. T. R. Preston, Esq., Emigration Commissioner for Canada, 11, Charing Cross, S.W."

THE WELCOME TO THE KING IN EDINBURGH.

DURING the King and Queen's visit to Edinburgh, the city was beautifully decorated with real evergreen wreathing and garlands of flowers. There were 11 miles of evergreen wreathing used along the Royal route. In Princes Street, pot plants in bloom were used on the electric standards with effect: Rhododendrons, Pelargoniums, Fuchsias, Hydrangeas, Cinerarias, Marguerites, Heaths, Lilies, and Roses, all being arranged so that the whole of this grand street had a wonderful gay appearance. There were four magnificent arches erected—one at Waterloo Place at fig. 127, one at Lothian Road, one at Minto Street at fig. 128, the other at the entrance to Colinton Mains Hospital grounds. The Waterloo arch carried about 8 tons of plants, among them numerous Palms from 4 to 15 feet in height, the whole being one mass of flowers and foliage. This arch was erected to suit the building near to it, and was considered to be one of the finest effects ever produced as a floral design. The Minto Street arch carried a basket 6 feet in diameter, its centre was filled with plants, while the alcoves were filled with beautiful plants. The lattice-work was covered with Clematis in bloom and Crimson Rambler Roses in a charming manner. The Lowthian arch was also floral, and a magnificent success, while such other places as the old Mercat Cross, the Duke of Buccleuch's Monument, were transformed into lovely studies of plants in bloom. Altogether 4,654 plants were used in the city; while at the City Hospital, Colinton Mains, a complete flower garden was laid out in forty-eight hours, and the suite of eight rooms used by their Majesties was also decorated with plants, so as to be, as one lady described it, a dream of loveliness, 2,113 plants were used here; many choice cut flowers being employed. The whole of the work in the city and at Colinton Mains was carried out by Mr. McHattie and the Parks' staff. This is the first time that real flowers and plants have been brought into play to such an extent, and we hope to see more of it in the future, instead of the miserable rags of drapery and paper flowers so often used on occasions like this.

The Queen, escorted by Lord Rosebery and assisted by Mr. McHattie, planted a tree, an English Elm, in the hospital grounds; her Majesty remarked, that it was a "bonnie tree," and requested Mr. McHattie to "look well after it." Then it was the turn of the King, who planted a Scotch Elm, with some similarly pleasant remarks.

FIG. 127.—THE KING'S VISIT TO EDINBURGH: WATERLOO ARCH, 45 FEET IN HEIGHT.

BOOK NOTICE.

DIE ROSENSHÄDLINGE AUS DEM THIERREICH: (Insect Foes of the Rose). By Friedrich Richter von Binnenthal, with 50 Illustrations in the text by Alexander Reichert. (Stuttgart, at Eugen Ulmer's Library.)

The author of this unique and very useful work in his preface draws attention in the first paragraph to the necessity of taking measures against the many enemies of the Rose, and of the need of a tireless fight against them. In many instances the various injurious insects are thought of small account, or they are not recognised soon enough, nor the proper means taken for their destruction and for the protection of the plants, these being considered too troublesome, or not enough energy is exerted in their application; or the cultivator has not sufficient knowledge of the means. There already existed some small handbooks which served the purpose of the practical gardener and amateur in regard to a few of the chief enemies of the Rose, their stages of development, the means to be taken for their destruction, and showing how Roses might be protected against their attacks. But the treatment of the subject is mostly insufficient, the authors contenting themselves chiefly with the question of cultivation.

In the work under notice, there are chapters on the development and mode of life of the various insects injurious to the Rose, beginning with Coleoptera, among which various enemies of the Rose are found; then to Hymenoptera, plant-wasps, a great number of which genus are very injurious; the butterflies and moths, Lepidoptera, which as caterpillars form a numerous contingent of plagues; Diptera, flies and gnats, and several others.

The author is quite up-to-date in his knowledge of the numerous substances employed against insect foes of the Rose, even mentioning "Press Hefe" (German yeast), an effective means of killing insect parasites, the continuous cell development of which brings about their destruction. This had already been tried against the Colorado-beetle, the enemy of the Potato, but without success; and numerous plants containing poisonous juices or alkaloids are mentioned as having been employed. As the book contains many illustrations of full-grown male and female insects, caterpillars of natural size or reduced, the reader is enabled to recognise the insects readily by the help of the accompanying text. To gardeners and amateur cultivators of the queen of flowers, who are acquainted with the German language, we can cordially recommend this work on the insect foes to which she is subject. The book can be obtained of Messrs. Williams & Norgate, 14, Henrietta Street, Covent Garden.

MARKET GARDENING.

SOUVENIR DE LA MALMAISON CARNATIONS IN LARGE POTS.

FOR cut blooms, I could see the drift of the argument. The grower, Mr. J. Kirkwood, gr. to H. Wormald, Esq., Grass Park, Finchley, N., assures me that these two-year-old plants are useful for early flowering. This fact I observed, for whilst an entire house is filled with strong examples of clean-grown year-old plants from layers, the old plants are gay with flowers, and the others will succeed them.

I noted two of the best, viz., Nautilus, a very distinct flesh-coloured bloom, models of what Malmaisons should be; and the well-known Princess of Wales, a deep pink-coloured variety. Flowers had been cut the previous day for sending to the family in town, yet a dozen more blooms from each plant could have been gathered. The pots were 10 and 12 inches in diameter, the plants well staked, and the heads large, really fine exhibition plants, although they are specially grown for supplying cut blooms.

Doubtless here, as with most Carnation-cultivators, the ample space afforded the plants contributes greatly to the fine results obtained. All the plants are free from the Carnation-rust. Malmaison Carnations are great favourites with flower-buyers. The large pots are employed, not for getting gigantic blooms, but for obtaining plenty of flowers for cutting. The London season has begun, and I know that a word about this class of plants is always of interest to growers and readers of the *Gardeners' Chronicle*. *Stephen Castle.*

PINUS INSIGNIS (RADIATA).—According to a statement in the *Agricultural Journal of the Cape of Good Hope* for April, 1903, the average annual increment per acre of ten-year-old trees has been no less than 526 cubic feet as compared with Oak, 57 cubic feet; Blue Gum (Eucalyptus), 152 feet; Cluster Pine (Pinus Pinaster), 203 feet. These are remarkable figures, but they are given in the report of the Conservator of Forests for 1899. Latterly, the leaves of the Pinus insignis have been injured by the larva of a moth, Antheræa cytherea.

FRUIT REGISTER.

PEACH ALEXANDER.

I GATHERED highly coloured, good sized fruits of the above-mentioned variety on April 11. In my experience I do not think there is any other variety that will yield a crop of ripe fruits so early in the season. I have tried here, and also in the Midlands, Waterloo, which only proved a failure; but grown in a cooler house, it yields an abundant crop of fruit here. I may just state that I have gathered ripe fruits of this from the open walls, from the second to the third week in July, in the Midlands, and it will not bear early forcing; but Alexander can be relied on for producing early fruits. The next in order of ripening, which we commenced gathering on April 22, are Early Louise Peach, and Rivers' Early Nectarine, which will be followed later by Condor, Early Alfred, Early York, and Royal George Peaches; Lord Napier, Elruge, and Victoria Nectarines. I should state that the Peach-houses here are long, lofty, and wide, the early house containing twelve permanent trees, Alexander occupying the warmer end of the house, which is invariably closed for forcing operations as near the middle of December as possible in each year. Two other houses are started into work each a month after the other, which extends the Peach season with us from the first-mentioned date into September.

I have penned these few notes, thinking they may be of some slight service to those contemplating the renovating of old Peach-houses, or the planting of new ones. *Edward Ward, Longford Hall, Manchester.*

SOCIETIES.

ROYAL HORTICULTURAL.

MAY 19.—Though the meeting of the Committees on Tuesday last in the Drill Hall, Buckingham Gate, Westminster, was held but one week before the great display of the year will be made in the Gardens of the Inner Temple, there were sufficient exhibits to make the Hall conveniently full. The flower of the day was to have been the florists' Tulip, which was shown under the auspices of the National Tulip Society—but the exhibits in these classes were not very numerous; and although the flowers themselves possess most beautiful markings and colour, as well as good form, the extensive and gorgeous displays of the self coloured Tulips and varieties of Tulipa exhibited before the Narcissus Committee appeared to attract most attention from the visitors.

The FLORAL COMMITTEE recommended six Awards of Merit, five of them to flowering plants, and one to the species of Rubus figured last week. A vote of condolence with the relatives of the late Mr. J. D. Pawle was passed. Mr. Pawle, who was over eighty years of age, was formerly a member of the Floral Committee.

The ORCHID COMMITTEE recommended one Botanical Certificate, and four Awards of Merit.

The only exhibit of importance before the FRUIT AND VEGETABLE COMMITTEE was a grand collection of orchard-house fruit and fruit-trees from the gardens of Mr. LEOPOLD DE ROTHSCHILD, Gunnersbury.

In the afternoon LECTURES upon "The English Tulip" were delivered by Mr. A. D. HALL, M.A., and Mr. J. W. BENTLEY. About eighty-six new Fellows were elected to the privileges of the Society.

Floral Committee.

Present: Chas. E. Shea, Esq., in the Chair; and Messrs. C. T. Druery, J. Green, J. F. McLeod, J. Hudson, J. Jennings, W. Howe, C. R. Fielder, Chas. Dixon, C. Jeffries, G. Gordon, C. E. Pearson, R. C. Notcutt, W. P. Thomson, E. H. Jenkins, C. Blick, Geo. Paul, and Ed. Mawley.

A white double flowered Stock shown by Messrs. W. BULL & SONS, Chelsea, was very remarkable. The flower-spikes were nearly 2 feet long, and the individual flowers nearly as large as those of a Hollyhock (2 ins. across); some of them showed signs of prolification. There were thirteen fully expanded flowers upon a spike, and thirty to open. The leaves were unusually large.

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, exhibited a number of varieties of ornamental-leaved Begonias, amongst which the well-known Arthur Malet was conspicuously attractive; Silver Queen and Berger, being of a very light shade of grey, afforded good contrast (Bronze Banksian Medal).

Messrs. H. CANNELL & SONS, Swanley, Kent, made a very gay display of show, decorative, and regal varieties of Pelargoniums, showing bouquets of cut flowers in glasses placed on a ground of white tissue paper. There were about twenty-five varieties, and these included several new ones, as Countess of Crewe, a decorative variety, with very large flowers of rich pink colour; Paul Oliver, bright scarlet, with white throat: G. Verdi, rich pink, with large deep chocolate blotch on each petal; Lord Carrington, double pink; Lady Carrington, large white, or blush colour, with red markings (Silver Flora Medal).

A group of finely grown Carnations in pots was shown by Messrs. CUTBUSH & SONS, Highgate Nurseries, London, N., in which varieties of Souvenir de la Malmaison Carnation predominated. Nell Gwynne, white; Lord Welwyn, one of the deepest red coloured varieties; Sir Chas. Fremantle, bright red colour; Princess of Wales, Lady Rose, Gemma, a very refined flower, one of the best of the blush-pink sorts; and Princess May. Other varieties shown included Uriah Pike, Mrs. Herbert Cutbush, Cecilia, &c. (Silver Banksian Medal).

Messrs. BLACKMORE & LANGDON, Twerton Hill Nurseries, near Bath, exhibited blooms of magnificent double and single-flowering Begonias, which were quite a foretaste of the Temple Show (Silver Flora Medal).

Messrs. G. JACKMAN & SONS, Woking, showed a collection of alpine plants, arranged in a neat and pleasing

FIG. 128.—THE KING'S VISIT TO EDINBURGH: THE MINTO STREET ARCH. (SEE P. 332.)

Some good habited varieties of Myosotis pyramidalis were also shown by Messrs. H. CANNELL & SONS, Swanley, Kent. They were called Blue Gem, Pink Gem, and White Gem.

Messrs. JAS VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, exhibited a collection of twenty-five scented-leaved varieties of Pelargoniums, being thus a very complete collection. Most of the varieties have green leaves, and the well-known Lady Plymouth and crispum majus variegatum alone had variegation (Silver Flora Medal).

Messrs. JOHN PEED & SONS, West Norwood, London, S.E., showed a group of alpine and hardy plants arranged in boxes. The Saxifragas, Phlox, &c., were numerous, and there was a good plant in flower of Euphorbia pilosa.

Messrs. T. S. WARE, Ltd., Hale Farm Nurseries, Feltham, exhibited a large group of pot Roses in about 100 varieties, quite young plants from recent grafts. Most of the best new varieties were included in the group (Silver Banksian Medal).

Messrs. FRANK CANT & CO., Braiswick Gardens, Colchester, showed about seventy bouquets of Rose blooms of good quality, also two dwarf standard trees of the new variety Lady Roberts, which showed how free-blooming the variety is (Silver Flora Medal).

manner; Incarvillea Delavayi, Ostrowskia magnifica, hardy Cypripediums, Trillium stylosum, &c. (Silver Flora Medal).

Messrs. J. PEED & SONS showed a quantity of Gloxinia flowers, remarkable for their large size and brilliant colours (Bronze Banksian Medal).

The pretty pink flowered, fine habited variety of Verbena hybrida named Miss Willmott was again shown in a little group from Messrs. B. S. WILLIAMS & SON, Victoria and Paradise Nursery, Upper Holloway, London, N.

Messrs. PAUL & SONS, The Old Nurseries, Cheshunt, exhibited cut blossoms of numerous varieties of Lilac Philemon and La Tour d'Auvergne are remarkable for deep colour; Madame Casimir Perier and Comtesse H. de Choiseul are good double flowers, and Alphonse Laval &c and Marc Micheli are new ones, the last-named variety having exceedingly large flowers.

Messrs. B. S. CANT & SONS, Colchester, exhibited blooms of about thirty varieties of Roses, including Maharajah, a new pillar Rose having single, crimson flowers nearly 5 inches across. In a small bouquet of Polyantha varieties, there were fourteen varieties represented.

Mr. MAURICE PRITCHARD, Christchurch, Hants, exhibited a collection of hardy flowers and plants,

including fine flowers of Kniphofia, also a pot plant of the tiny Silene acaulis, with double flowers, which received considerable attention, despite its inconspicuousness. Trollius Orange Globeand Euphorbia pilosa major were shown finely (Silver Flora Medal).

Mr. G. REUTHE, Hardy Plant Nursery, Keston, Kent, in addition to a collection of Tulips, showed Lithospermum prostratum, Gentiana verna, Erigeron Roylei, pink; Gerbera Jamesoni, &c.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, exhibited sprays of flowering trees and shrubs—a very showy collection. Noticeable were several hybrid Cytisus, obtained from C. scoparius and C. Andreanus; they are rather dwarf in habit, and flower very freely. Varieties of Lilac, sprays of Ledum palustre, Cytisus albus, and flowers of Magnolia Soulangeana nigra, richly coloured, were also shown (Silver Banksian Medal).

Messrs. EDWARDS, HARLENE & Co., 95 & 96, High Holborn, exhibited "Junoflorus," a liquid which is said to preserve flowers in water for a long period, even if they have shown signs of withering.

Mr. R. ANKER, Addison Nursery, Napier Road, Kensington, W., again exhibited seedling Cacti, including numerous varieties of Echinocacti, Cereus, Opuntia, &c.

Excellent tubs suitable for tender shrubs, Camellias, Oranges, Rhododendrons, &c., were shown by Messrs. CHAMPION & Co., corner of Old Street and City Road, London, E.C. They are made strongly of Oak, stained and varnished. The hoops are painted, and with the bronze handles, the tubs have a very good appearance. Some were round, others square, the corners merely rounded; and triangular, also with rounded corners. Others made with Teak wood were fitted with coppered handles.

Awards.

Aubrictia, "*Pritchard's A1.*"—An excellent variety, with much larger flowers than most varieties have; colour rich purple, passing to violet. Shown by Mr. MAURICE PRITCHARD, Christchurch (Award of Merit).

Carnation Alma.—This is a border variety, shown by Messrs. BLACKMORE & LANGDON, Twerton Hill Nurseries, Bath, and remarkable for large size, deep crimson colour, and strong perfume; though not exactly a florist's flower, it is sure to be largely cultivated (Award of Merit).

Hippeastrum Julius.—This charming and brightly coloured variety was shown by Messrs. JAS. VEITCH & SONS. The colour is bright scarlet, and the segments have a white margin (Award of Merit).

Rhododendron yunnanense.—Cut flowers of this very free-flowering blush-coloured Rhododendron, from Yunnan, were shown by Mr. F. W. MOORE, Glasnevin Botanic Garden, Dublin. The flowers are small, very numerous, and of the palest blush colour, with minute spots on the upper petal (Award of Merit).

Rose Souvenir de Pierre Notting.—This excellent new Tea Rose, of rich yellow colour, was illustrated in the *Gardeners' Chronicle*, Oct. 13, 1900, p. 271. It was raised by MM. SOUPERT ET NOTTING, from a cross between the varieties Maréchal Niel and Maman Cochet. The flowers have the colour of Maréchal Niel, and they are excellent in form. Shown by Mr. GEO. PRINCE, Longworth (Award of Merit).

Rubus moluccanus.—This tender species of Rubus, figured and described in our last issue, was shown by Messrs. JAS. VEITCH & SONS, Ltd., Royal Exotic Nursery, King's Road, Chelsea. It will be remembered that the species has been shown previously, under the name of R. reflexus. It is an old plant, but appears not to be in cultivation in this country (Award of Merit).

Narcissus Committee.

TULIPS.

Not a single Daffodil was exhibited on this occasion, but a large number of Tulips was submitted, of what are known as the Darwin and Cottage types, and the May-flowering varieties. Some classification of the very large number of garden Tulips has become necessary. The species and their varieties appear to be much mixed, while among the Darwin group there is a great amount of confusion, the same variety appearing in catalogues under different names.

Messrs. WALLACE & Co., Kilnfield Nurseries, Colchester, staged a large and representative collection of general good quality, yellow shades appearing to preponderate, as there was a large proportion of the May-flowering types. Of yellow varieties they had Parisian Yellow, Yellow Gem, Mrs. Moon, Gesneriana lutea pallida, Leghorn Bonnet, Flare, and Bouton d'Or; of crimson shades, Gesneriana major, Inglescombe Scarlet, maculata, Maueriana fulgens, and Coronation Scarlet; of fancy, or bicolor and tricolored forms, La Merveille, Blushing Bride, Billietiana in several varieties, Picotee, Didieri lutescens, vitellina, and a group of Parrot varieties (Silver Flora Medal).

Messrs. BARR & SONS, King Street, Covent Garden, very commendably arranged their flowers in groups, instead of mixing up the various types together. Of English Tulips they had flamed forms of bizarres, Lord Stanley, James Wild, Sir J. Paxton, Dr. Hardy, and Colbert; flamed rose, Mabel, and flamed byblœmen, Wedding Coat, and such breeders as Kate Connor, and Mabel Roses, and Goldfinch bizarre; of Darwin varieties, The Sultan, Mrs. Krelage, Hecla, Luzon, Anthony Roozen, Glow, Margaret, Ruby, &c.; of May-flowering types, Lion d'Orange, Apricot, Mrs. Moon, Gesneriana lutea, Vivid, Sunset, Chameleon, Mrs. Kerrell, of a peculiar shade of slaty-salmon, &c. (Silver Flora Medal).

Mr. R. H. BATH, LTD., Wisbech, also staged a good and varied collection, but much mixed, and the names so placed that it was difficult to ascertain them. The most striking Tulips were Gesneriana alba marginata, Europa, Margaret, Glow, Leghorn Bonnet, May Queen, La Tulipe Noire, The Fawn, Edmee, Zephyr, Mrs. Moon, Scarlet Beauty, Maiden's Blush, Bouton d'Or, the old double Mariage de Ma Fille, the double Rose, and Parrots in variety, with a few Carnations (Silver Flora Medal).

Messrs. VEITCH & SONS, King's Road, Chelsea, staged a collection of fresh, bright blooms, which comprised Gesneriana aurantiaca, Parisian White, Billietiana, Gesneriana, G. Nigrette, G. lutea, Bouton d'Or, Platystigma, flava, and such Darwin types as Milton, Mrs. Cleveland, Doris, Reinault, Zephyr, Queen of Roses, Sunny Beauty, and several Parrot varieties (Silver Banksian Medal).

Messrs. R. & G. CUTHBERT, nurserymen, Southgate, had a bold collection, chief among them were such Darwin types as Isabella, White Queen, Jaune d'Œuf (Yolk of Egg), Bonfire, Psyche, Daubigny; also fulgens, Striped Beauty, Yellow Queen, Union Jack, striped with deep lilac on a white ground; vitellina, &c. (Silver Banksian Medal).

Mr. W. BAYLOR HARTLAND, nurseryman, Cork, sent a collection of general fine development, but they were crowded into a space wholly inadequate to show them off to anything like advantage; while it was practically impossible to read the names without disarranging the bunches. Such forms as velutina, Mrs. Moon, Gesneriana lutea pallida, neglecta picta, &c., being included in a collection of much interest (Silver Banksian Medal).

Messrs. W. BULL & SON, King's Road, Chelsea, had a collection which included some double and Parrot varieties, also sent Darwins, Golden Crown, The Queen, Victoria Mine, Carlos, &c. (Vote of Thanks).

Messrs. B. S. WILLIAMS & SON, Victoria Nurseries, Holloway, had such Tulips as The Fawn, Margaret, Gala Beauty, Gesneriana ixioides, Doris, Leghorn Bonnet, Bouton d'Or, Picotee, Coronation, &c., and several Parrot varieties (Vote of Thanks).

Mr. G. REUTHE, Hardy Plant Nursery, Keston, had a bank of Tulips, fronted by a few hardy plants; the former appeared to be largely unnamed, but one could detect Gala Beauty, Bouton d'Or, Nauticus, Maria Theresa, &c. (Vote of Thanks).

AWARDS OF MERIT.

Tulip Zomerschoon.—A large and handsome variety of the Cottage type; deep rose, flaked with white; large, good form; bold and striking. Exhibited by Miss F. CURREY, Lismore, Ireland.

Strangulata maculata.—Soft primrose-yellow, with a conspicuous dark greenish centre; bold and handsome.

Zulu.—A Darwin Tulip; dark, almost black; a stout flower of handsome build; perhaps the nearest approach to a black Tulip.

May Queen.—Also a Darwin; pale soft rose, with a delicate flushing on the petal edges, and a dark base; a flower of fine form.

The three foregoing were exhibited by Messrs. BARR & SONS, King Street, Covent Garden.

The Fawn.—Classed with the Cottage varieties, a mixture of fawn and soft pink, feathered with white, pale yellow base, a very attractive variety. Exhibited by Messrs. WALLACE & Co., Colchester; and BARR & SONS, Covent Garden.

Orange King.—Orange and pale red, yellow base, a bold and striking variety of fine form.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), N. C. Cookson, De B. Crawshay, J. Douglas, W. Cobb, H. Ballantine, E. Hill, G. F. Moore, A. A. McBean, H. T. Pitt, F. W. Ashton, M. Gleeson, J. W. Odell, T. W. Bond, F. J. Thorne, W. Boxall, W. H. Young, H. J. Chapman, H. Little, F. Wellesley, and J. G. Fowler.

The Hon. WALTER ROTHSCHILD, M.P., was awarded a Silver Flora Medal for a very showy and interesting group of hybrid Masdevallias, which included M. × Rushtoni, bright scarlet; M. × Fraseri, M. × Gairiana, and M. × Mundyana, fine flowers, yellow and scarlet; M. × Hebe, a curious new hybrid between M. coriacea and M. Veitchiana; M. × Veitchiano-Estradæ, orange colour; M. × caudato-Estradæ, and the bright purple M. × glaphyrantha, M. × Henrietta, M. × Leda, and the curious Xylobium squalens were also included.

NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman), received a Silver Flora Medal for a group of fine hybrid Phaius, and varieties of Odontoglossum crispum. Among the former the finest were Phaius × Ruby, P. × Oakwoodiensis, P. × Phœbe superbus, and aureus, all very fine in colour, and remarkable for their large flowers. Of the Odontoglossums, O. crispum Harold was the most remarkable (see Awards), O. c. Massangeana, a very richly blotched variety; O. c. Lehmanni, Oakwood variety, a prettily spotted form of the O. Pescatorei-like type of O. crispum; O. × excellens Princess Christian, a very fine plant, with two spikes of bright yellow flowers, spotted with red-brown; Dendrobium × Venus, Cookson's variety; Cypripedium callosum Sanderæ, and a good C. bellatulum were also noted.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), was awarded a Silver-gilt Flora Medal for a very fine group, in which not only the favourite Odontoglossums, but most other showy classes of Orchids were well represented. Of Odontoglossum crispum there was a very fine large pure white form, the distinct O. c. Emperor, O. c. Ladybird, and other handsome forms; good O. × Adrianæ, O. citrosmum album, the very large and beautiful O. cirrhosum "Pitt's variety," O. Uro-Skinneri, and O. Pescatorei. Other good things noted were Cypripedium Lawrenceanum Hyeanum, C. L. Hackbridgense, C. Mastersianum, C. × Euryalus, Miltonia Roezlii, M. vexillaria gigantea, Trichopilia marginata, Dendrobium × Rhodopterygium, Lælia purpurata, Brassia Wrayæ, Cattleya × Lawre-Mossiæ, C. × Wm. Murray, C. Schroderæ heatoniensis, and various Oncidiums.

WALTER C. WALKER, Esq., Winchmore Hill (gr., Mr. Geo. Cragg), showed a group, principally of very fine and excellently well grown Odontoglossum crispum, for which he was awarded a Silver Flora Medal.

Messrs. HUGH LOW & Co., Bush Hill Park, secured a Silver Flora Medal for a group in which were two remarkably fine specimens of Cattleya Skinneri, one of which bore seventeen spikes; two Cattleya intermedia alba, a fine specimen of Dendrobium Bensoniæ, Vanda lamellata, &c.

Sir ROBERT D. MONCREIFFE, Bart., Moncrieffe House, Bridge of Earn, N.B. (gr., Mr. A. Common), showed cut spikes of splendidly grown, fine varieties of Odontoglossum crispum, and one of O. × Aodersonianum.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. Gilbert), showed Cattleya Mossiæ Arnoldi Westfield variety, one of the handsomest of white-petalled Cattleyas; C. Skinneri alba Minnie, and Lælio-Cattleya × Zephyra alba, which had previously been accorded an Award of Merit.

Col. BRYMER, M.P., Dorchester (gr., Mr. J. Powell), sent cut spikes of four varieties of Thunias.

LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House (gr., Mr. Hudson), showed a fine plant of the apricot-yellow Lælio-Cattleya × Phœbe, with two flower spikes.

H. J. ELWES, Esq., Colesborne, Andoversford, showed Thunia Marshalli, and the much finer T. M. aurantiaca, imported from Sikkim; also T. Bensoniæ.

DE B. CRAWSHAY, Esq., Sevenoaks (gr., Mr. Stables), showed Odontoglossum × Hallio-crispum and O. × Wattiauum Crawshayanum, the latter securing an Award of Merit.

F. W. MOORE, Esq., Royal Botanic Gardens, Glasnevin, Dublin, sent a cut spike of Eria Kingi, a close ally of E. æridostachya, Reich. f.

Awards.

AWARDS OF MERIT.

Odontoglossum crispum "Harold," from NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman).—A fine flower of the best broad type, with all the

segments fringed, the lower halves of the lateral sepals being abnormally developed and toothed at the margin, their bases bearing yellow and brown markings as on the lip. Flowers clear white, the sepals and lip handsomely marked with red-brown.

Odontoglossum crispum "*Lady Moncreiffe*," from Sir Robert D. Moncreiffe, Bart. (gr., Mr. A. Common).—A very handsome variety with large purple-tinted flowers, the sepals bearing each one very large reddish blotch, and the petals and lip smaller corresponding blotches.

Odontoglossum × *Wattianum Crawshayanum* (Lindleyanum × Harryanum), from de B. Crawshay, Esq. (gr., Mr. Stables).—A showy flower with distinct traces of O. Lindleyanum, but with much of the beauty of O. Harryanum, sepals and petals yellow heavily marked with brown, lip white with a large purple blotch at the base and smaller purple markings.

Dendrobium glomeratum, from Messrs. Hugh Low & Co.—Flowers in a compact truss on the old pseudobulb, dark rose purple.

Botanical Certificate.

Trigonidium spatulatum, from H. T. Pitt, Esq.—A very singular species with the spikes bearing a terminal flower, the equal sepals of which are yellowish-purple and recurved at the tips.

Fruit and Vegetable Committee.

Present: George Bunyard, Esq. (in the Chair); and Messrs. H. Balderson, Geo. Woodward, W. Bates, S. Mortimer, A. Dean, A. Melville, H. J. Wright, E. Beckett, H. Eslings, P. C. M. Veitch, J. Jaques, G. Reynolds, F. Q. Lane, J. Willard, G. Wythes, O. Thomas, Jos. Cheal, and Geo. Kelf.

From Leopold de Rothschild, Esq., Gunnersbury House, Acton (gr., Mr. J. Hudson), came a grand exhibit of fruit trees, and fruit cultivated in the orchard house. The trees exhibited perfect health, and bore abundant crops of fruit. Amongst them were Cherries, Governor Wood, Bigarreau de Schrecken, Frogmore Early Bigarreau, Guigne d'Annonay, Empress Eugénie, &c.; also gathered fruits of Early Prolific Plum, eighteen fruits of Lord Napier Nectarine, eighteen fruits of Cardinal Nectarine, eight varieties of Cherry, and four punnets of Royal Sovereign Strawberry. All the fruits were of good size, excellent colour, and first-rate quality (Hogg Medal).

Mr. Peter Blair, gr. to the Duke of Sutherland, Trentham Hall, Staffordshire, exhibited fruits of a seedling Apple, which seemed to partly resemble Sturmer Pippin and partly a variety of Beafing.

From the Royal Horticultural Society's gardens at Chiswick, were shown several good varieties of Radish.

A good sample of Black Hamburgh Grapes was shown by Mr. J. Hodges, Raspur Vineries (gr., T. le Pelley). These were contained in four boxes, as packed for market, each holding five or six bunches, and nine additional bunches were shown on a stand (Silver Knightian Medal).

The Lecture.

The lecture on Tulips was given amid all the noise and confusion of a Drill Hall Tuesday, which emphasised once more the urgent need of a proper lecture-room and the existing deficiency of ordinary requirements for the Chairman and the lecturer, some of which might be supplied even now. The conditions were so unfavourable, that little was heard of the lecturer, who read his paper from manuscript.

Mr. Hall's introductory address as Chairman, delivered with full sympathy with his subject and copious knowledge, was listened to with much interest. Mr. Hall traced the history of the garden Tulip, pointed out the special points beloved of the florist, explained their ideal standard of perfection, and the means they took to approximate as closely as possible to it.

In the course of his remarks he stated that the Tulip as a florist's flower was not so much Dutch as English. He commended the so-called Darwin Tulips for their vigorous growth, and pointed out the necessity for blending the vigour of this race with the purity and brilliancy of the florist's Tulip.

As to the latter, the lecturer, Mr. Bentley, who followed Mr. Hall, pointed out how much the properties of the florist Tulip was a matter of individual taste, the standard of the northern growers being different from that of their southern colleagues—a circumstance, by the way, that may induce some to prefer the breeders, the Darwins, and the border Tulips generally, to the curiosities of the florist. *Chacun à son goût.*

NATIONAL TULIP SOCIETY.

The devotees of the florist's Tulip are not a numerous body, judging from the paucity of exhibitors on this occasion, but they are earnest, and enthusiastic, and appear to be determined to keep the flower, once so much grown around London for exhibition purposes, before the public. The season has been dead against them, and the majority of the blooms staged in competition would have been better for a week of warm and genial weather. Still, the Tulip fraternity did the best they could, and deserve credit for the attempt. The public found the large bunches of garden varieties much more attractive than the florist's varieties. At the same time, there were not a few who scanned the latter with considerable interest, and no doubt rejoiced that the Tulip as an exhibition flower had not quite ceased to be cultivated.

Rectified Tulips.—The principal class was for twelve dissimilar rectified Tulips, two feathered and two flamed in each class, and there were two entries; Mr. J. W. Bentley, Stakehill, Middleton, was placed 1st, with bizarres, flamed, San José and Sir J. Paxton; feathered, Masterpiece and Sir J. Paxton; byblœmens, flamed Adonis and Othello, feathered, Adonis and Trip to Stockport, roses, flamed Annie McGregor and Mabel, feathered, Julia Farnese and Modesty. Mr. A. Chater, Cambridge, was 2nd; he had of bizarres, flamed Dr. Hardy and Sir J. Paxton, feathered, Masterpiece and Sir J. Paxton, byblœmens, flamed Talisman and Adonis, feathered, Duchess of Sutherland and Adonis, roses, flamed Sarah Headley and Annie McGregor, feathered, Sarah Headley and Modesty.

There were three competitors with six blooms, one feathered and one flamed of each class, and here Mr. C. W. Needham, Hale, Cheshire, was placed 1st, with bizarre, flamed, Orion, feathered, Masterpiece, byblœmen, flamed Adonis, feathered, Trip to Stockport, roses, flamed, Aglaia, feathered Julia Farnese. 2nd, Mr. J. W. Bentley, with bizarres, flamed Lord Stanley, and feathered, Masterpiece; byblœmens, flamed, Adonis, and feathered, Bertha; roses, flamed Annie McGregor, and feathered Modesty. Mr. A. Chater was 3rd.

The next class was for three feathered Tulips, one of each class, Mr. C. W Needham taking the 1st prize with bizarre, Samuel Barlow, byblœmen, Trip to Stockport, and rose, Andromeda. Mr. J. W. Bentley was 2nd; he had bizarre, Sir J. Paxton, byblœmen, Bertha, and rose, Modesty. Mr. W. Peters was 3rd.

With three flamed Tulips, one of each class, Mr. W. Peters was awarded the 1st prize; he had bizarre, Samuel Barlow, byblœmen, King of the Universe, and rose, Annie McGregor. Mr. J. W. Bentley came 2nd; he had bizarre, Dr. Hardy, byblœmen, Chancellor, rose, Annie McGregor. Mr. C. W. Needham was 3rd. There were four exhibitors in the former of these classes, and six in the latter.

Breeder Tulips.—These were small and lacking in development, but they are always physiologically interesting because they represent the seedling and transient stage of the Tulip, and they also serve to illustrate the beautiful self colours and pure bases they present to view, a quality lacking in almost every one of the Darwin breeders. No one who carefully scans the interior of a breeder Tulip can fail to notice how much the pure base, whether yellow in the case of the bizarre, or white, as in the case of the byblœmen and the rose, augments the beauty of the flowers [a matter of opinion]. But the most beautiful among them may, at any time, become "rectified" into something worthless when the permanent colouring of the flower is reached.

The best six breeders, two of each class, came from Mr. J. W. Bentley. He had of bizarres, Sir J. Paxton and Goldfinch; byblœmens, Adonis and Thurston's 21; roses, Mrs. Barlow and Lady Grosvenor. Mr. C. W. Needham was 2nd; he had of bizarres, Richard Yates and Goldfinch; byblœmens, Adonis and Eliza Pegg; roses, Rosehill and Lady Grosvenor.

With three blooms, one of each class, Mr. W. Peters was 1st: he had bizarre Goldfinch, byblœmen Maid of the Mill, and rose Annie McGregor. 2nd, Mr. C. W. Needham, who had bizarre Schofield's Scarlet, byblœmen Ashmole's 112, and rose Loveliness, a Darwin breeder, of a soft, rosy-pink colour and with a pure base, handsome in build. Mr. J. W. Bentley was 3rd.

Rectified Tulips.

Single Blooms.—Feathered bizarre: 1st, Mr. C. W. Needham, with Attraction; 2nd with Masterpiece, and 3rd with the same. Flamed bizarre: 1st, Mr. J. W. Bentley, with Samuel Barlow; 2nd, Mr. C. W. Needham; and 3rd, Mr. A. D. Hall, both with Sir J. Paxton. Feathered byblœmen: 1st, Mr. W. Peters, with Adonis; 2nd, Mr. C. W. Needham, with the same. Flamed byblœmen: 1st, Mr. J. W. Bentley, with Adonis, and 2nd with Chancellor; 3rd, Mr. A. Chater, with Talisman. Roses, feathered: 1st, Mr. J. W. Bentley, with a seedling; 2nd, Mr. C. W. Needham, with Andromeda; and 3rd, with Modesty. Roses, flamed: 1st, Mr. C. W. Needham, with Annie McGregor; 2nd, Mr. J. W. Bentley; and 3rd, Mr. J. Percival, both with the same variety.

Breeder Tulips.—Bizarre: 1st, Mr. J. W. Bentley, with A. Lloyd; 2nd, Mr. G. Edom, with Sir J. Paxton; and 3rd, Mr. C. W. Needham, with Goldfinch. Byblœmen: 1st, Mr. J. W. Bentley, with Martin's 178, and 2nd with Glory of Stakehill.

Premier Tulips.—The premier flamed flower was bizarre, Samuel Barlow, shown by Mr. W. Peters; the premier feathered, Trip to Stockport, from Mr. J. W. Bentley, which might be set down as the approximately more perfect flower in the show.

The Samuel Barlow Prizes.—The memory of this fine old Lancashire florist, for several years the President of the National Tulip Society, is kept green by the institution of special memorial prizes. This year the prize was for the best pair of rectified Tulips, special Memorial Medals being offered as awards: 1st, Mr. C. W. Needham, with two bizarres, feathered, William Wilson, and flamed, Samuel Barlow; Mr. J. W. Bentley came 2nd with two roses. He had feathered Modesty and flamed Annie McGregor; Mr. W. Peters was 3rd. He had two byblœmens, viz., Adonis, both feathered and flamed.

Five classes were set apart for growers of small collections, and in these the principal honours were divided between Messrs. W. Peters and W. Dunn, of Cambridge, the flowers shown being much the same as in the previous classes.

ROYAL CALEDONIAN, EDINBURGH.

May 20, 21.—The spring show of this old Society, formerly held early in April, was last year not held till a month later, and this year it is still later in the month. On the whole, less produce was exhibited, one reason for this being the effect the new bye-law, fining exhibitors 5*s.* on failing to exhibit, has had on gardeners. The exhibits, if fewer, were however of generally good quality, few that could be called inferior being shown. In the fruit classes there was a regrettable absence of all kinds of fruit, with the exception of Strawberries.

The show was opened by Lord Overtoun, and it was visited on the afternoon of Wednesday by the Lord High Commissioner, when the huge Waverley Market was crammed with people. A sketch of the history of the Society had been prepared by Mr. Murray Thomson, S.S.C., and this was distributed to visitors. Some of the chief classes are undernoted:—

Group of miscellaneous plants arranged on floor to produce the best effect within a circle 18 feet in diameter.—Three competitors staged in this class; Mr. A. Knight, gr. to Peter Wordie, Esq., Millersneuk, Lenzie, being 1st, with a bold group of particularly well cultivated plants, Crotons being specially noteworthy. Mr. Wood, gr. to J. Buchanan, Esq., Oswald House, Edinburgh, being 2nd with plants rather thinly disposed.

Table of Orchids 10 ft. long by 4 ft. 6 inches wide, arranged for effect.—Mr. McIntyre, gr. to Sir Charles Tennent, The Glen, Innerleithen, was the only exhibitor in this class, securing 1st prize with a nice lot of Dendrobiums and Odontoglossums.

Ten plants in bloom, at least eight must be distinct, excluding Hyacinths and Tulips.—The same exhibitor was also 1st in this class, a noteworthy example of Anthurium Scherzerianum being specially striking for its full development.

Six stove and greenhouse plants in flower.—Here again Mr. McIntyre was the only exhibitor, securing the 1st prize for a really fine lot, his Anthurium and Rhododendron specimens being specially fine. Mr. Wood was a very good 2nd.

Four Orchids, distinct.—Mr. Sharp, gr. to C. L. Wood, Esq., Freeland, Forgandenny, staged fine examples of Odontoglossum Alexandræ, O. Pescatorei, Vanda tricolor, and a small plant of V. t. Patersoni, to which the 1st prize was awarded; Mr. Wood, Oswald House, 2nd.

For one Orchid.—Mr. P. Walker, gr. to Major Brown, Monkdyke, Renfrew, was 1st, with a good example of Dendrobium thyrsiflorum; Mr. McIntyre 2nd, and Mr. Sharp 3rd.

Four foliage plants.—This class was well contested, Mr. A. Knight being 1st, with small but clean examples; Mr. McMillan, gr. to Lord Howe, Douglas Castle, Lanark, 2nd; and Mr. A. McKenzie, Trinity Grove, 3rd.

For six foliage plants, Mr. Knight was again 1st.

Two Dracænas, distinct.—Mr. Knight, with two nice examples, secured 1st prize in this class, and also for two Crotons, distinct; Mr. McIntyre, The Glen, being 2nd.

Collection of Spring Flowering Plants and Bulbs, not to exceed 5 feet by 5 feet.—One only exhibitor staged here, Mr. A. Dickson, gr. to W. G. Thorburn, Esq., Glenormiston, Innerleithen, to whom the 1st prize was awarded; the plants being mostly of the more common class, but bright and pretty.

There was a nice display in the class of twenty-four alpine plants, distinct, in 5-inch pots or pans. Mr. Miller, gr. to A. Cowan, Esq., Valleyfield, Penicuik, being 1st, the exhibit containing such plants

as Orchis pseudo sambucina, Arnebia echioides, Morisia hypogæa, Ramondia serbica var. Nathalie; Mr. D. ALLAN, Stobhill, Gorebridge, 2nd.

Auriculas were a nice show, the plants undressed, however. For six stage varieties Mr. J. Steward, gr. to H. COOK, Esq., Belwood, was 1st, with Acme, Beauty, Ruby, and Frank Simonite, each fine; Mr. A. Paterson, gr. to Sir ROBERT DUNDAS, Lasswade, 2nd. The same exhibitor being 1st in the class for six alpine Auriculas.

Of Primula Sieboldi varieties there was also a good display, as well as of P. obconica and of Polyanthus. In addition to these there were such seasonable plants as Spiræa astilboides, Cinerarias, Mignonette, and Ferns, all of which were well shown.

Nine Roses, in pots, distinct.—The plants were not large in this class, but nicely bloomed, Mr. Thorn, gr. to Mrs. HUTCHESON, Carlowrie, Kirkliston, being 1st; and Mr. Gallaway, gr. to Mr. DEWAR, Drylaw House, 2nd.

CUT FLOWERS.

These were not extensively shown, but they were generally fresh and good, the twenty-four Roses from Mr. Young, gr. to Mr. FLEMING-HAMILTON, Wigton, securing 1st in that class, being perfect; Mr. MCINTYRE, The Glen, was 2nd.

Mr. YOUNG was again 1st for twelve Roses, and for twelve Maréchal Niels.

There was also a nice lot of cut Tulips, Mr. Galloway, gr. to Lord WEMYSS, Gosford, having the best six vases.

For twelve bunches of Narcissus, Mr. JOHN PROSSER secured 1st, with somewhat common varieties; Mr. G. TWEEDIE, Swinton, Duns, 2nd.

Prizes were offered by Messrs. LAING & MATHER, Kelso, for three bunches of Malmaisons, and for six bunches of Carnations, Mr. YOUNG, Hartrigge, securing 1st in each case with large and fresh blooms.

Mr. MCINTYRE, gr., The Glen, Innerleithen, in a good competition, had 1st for twelve trusses of greenhouse flowers.

FRUIT.

As already noted, fruit was not exhibited except the two dishes of Strawberries, distinct. Mr. G. Mackinlay, gr. to Earl COWPER, Wrest Park, was 1st, with nicely coloured examples; Mr MCINTYRE, The Glen, 2nd; and Mr. GALLOWAY, Gosford, 3rd.

VEGETABLES.

The vegetable section was fairly well filled, and considering the untoward season, the entries were gratifying. Mr. Kidd, gr. to Lord ELPHINSTONE, Carbery Towers, Musselburgh, was 1st for a collection of six sorts, his Tomatos, Cucumbers, Potatos, and Broccoli, being extra fine; Mr. Stuart, gr. to Lord LAUDERDALE, Thirlestone Castle, was 2nd. Mr SCARLETT, Musselburgh, contributed the best collection of Salads; Mr. STUART again being 2nd. The best Mushrooms in a good class were staged by THE SCOTTISH MUSHROOM CO., Edinburgh.

MISCELLANEOUS.

The trade furnished some grand produce, of which may be noted that from Mr. D. W. THOMSON, Windlestrawlee, grouped a nice mass of Conifers, Lilies, hardy Azaleas, &c., on the floor of the hall.

Messrs. DICKSON & Co., Waterloo Place, Edinburgh, had a large and perfect group of plants in which very bright Rhododendrons were conspicuous. It also included good Streptocarpus, fine Calceolarias, and Cineraria cruenta.

Mr. JOHN FORBES, Hawick, contributed a table of forced herbaceous plants, including Pentstemons, Phloxes, Incarvillea Delavayi, double-flowered Rockets, reinforced by Auriculas and other flowers in season.

Messrs. REAMSBOTTOM & Co., Geashill, Ireland, showed a number of charming Anemone blooms in great variety; and from Messrs. A. & A. GLASS, Nether Liberton, came an arrangement of Aubrietias, Tulips, and Violas.

Messrs. J. DICKSON & SONS, Hanover Street, Edinburgh, staged a bright group of Parrot and other Tulips, Daffodils, and Crimson Rambler Roses.

Messrs. DOBBIE & Co., Rothesay, had a delightful display of Violas, Darwin Tulips, and a group of alpine plants neatly arranged as a rockery.

Messrs. HOGG & ROBERTSON, Dublin, staged a magnificent assortment of May Tulips, with a few Daffodils, and a large assortment of Anemones.

Messrs. R. B. LAIRD & SONS, Pinkhill, Edinburgh, had a grand arrangement of forced shrubs charmingly arranged, with Lily of the Valley, Spiræas, Ericas, and Lilium in great masses.

An Award of Merit was voted to Messrs. T. MEIKLEJOHN & SONS, 15, Princes Street, for a new Cabbage named Edinburgh Castle.

The prizes offered to young gardeners by Sir John Gilmoure, Montrave, was again this year very well contested, as many as nineteen plans being hung up on a wall of the market. The 1st prize was awarded to Mr. FRANK PHILIPS, Philipphaugh Gardens, Selkirk; 2nd to Mr. R. PHILIPS, Johannesburg; 3rd to Mr. H. KNIGHT, Farnley Hall, Otley, Yorks; and 4th to Mr. J. M. WEBSTER, Montgreenan Gardens, Kilmarnock.

Answers to Correspondents.

APPLES: *F. H.* The trees seem in very bad condition, probably from unsuitable soil and neglect. We will endeavour to name the caterpillar next week.

BOOKS: *G. P. The Book of Orchids.* The full address is John Lane, publisher. The Bodley Head, Vigo Street, London, W.

CARNATION: *B. T. N.* There is nothing particularly good in the pink-flowered Carnation.

CARNATIONS DISEASED: *Julius White.* The appearances are those connected with the presence of eel-worms in the leaves. These creatures, or their eggs, are in the soil used for potting. The soil should be sterilised by baking, steaming, or other means.

CARPET BEDDING: *S. Hartley.* We can make no reply to anonymous enquirers. Kindly send full address.

CATERPILLAR: *S. W. F.* You have sent the half-grown larvæ of the Magpie-moth, Abraxas grossulariata. You may materially lessen their numbers by jarring the branches of the infested bushes over an inverted umbrella.

CLEMATIS: *J. S.* The disease is too common everywhere; it is attributable to eel-worms in the roots.

CUCUMBER-PLANTS GOING OFF AT THE GROUND-LEVEL: *C. Robinson.* We should suppose that in this case the trouble may have arisen from the too free use of undecayed peat-moss litter, this being charged heavily with the saline and ammoniacal constituents of the excrements of the animals bedded down with it, or from some other similar cause, that would produce like results.

ERRATUM: In column 2, p. 307, of last week's issue, *for* Varmar *read* Farmar.

GARDEN CALENDAR: *C.* We certainly cannot notice or publish an attack on any contributor by a person sheltering himself behind an anonymous signature, and furnishing no means of identification.

GRAPE-VINES AND ORCHARD-HOUSE TREES NOT SETTING THEIR BLOSSOMS: *J. H. S.* In the case of Vines it may have been due to an over moist condition of the air in the vinery, to deficiency of pollen, or absence of bees, owing to the prevalence of cold which would keep them in the hive; which of these has caused the bad setting of the bunches in this case we are unable to state. When Vines are notorious for bad setting, pollen should be obtained from Black Hamburgh Vines and dusted over the bunches when the flowers are in a receptive condition. If you do not possess a Vine of this variety in bloom at the time, the flowers may be set with pollen from a Vine in a neighbouring garden, collecting it by means of a feather and sheet of paper from the flowers, when it is in a fresh powdery state. It will keep its potency for several weeks if kept rather dry.

HYDRANGEA HORTENSIA FLOWERS TO TURN BLUE: *Hydrangea.* Use peat impregnated with iron, mix iron filings with the soil, use water containing iron in solution, or apply water containing 2 oz. of alum per gallon.

MELON-LEAVES: *W. J. C.* Your leaves are affected with a fungus, probably Cercospora melonis. When plants are grown under such unhealthy conditions, they naturally fall a prey to fungous diseases. It is a penalty you have to pay. Give more air, and try spraying the leaves next season with ½ oz. liver-of-sulphur to a gallon of water. You can do little good this year.

MUSCAT GRAPES: *Muscat.* Grape-spot, due to presence of a fungus (Glæosporium). Burn the affected berries, and next season try the effect of spraying the young leaves and fruits in the earliest stage with liver-of-sulphur, ½ oz. to a gallon of water. Remove and burn every affected berry forthwith before spraying.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. B.* 1, species of Ribes which we cannot name; 2, Lonicera Ledebouri; 3, Pulmonaria officinalis; 4, Saxifraga crassifolia; 5, Scilla campanulata, white var.; 6, Luzula.—*F. C.* We cannot name the hybrid Veronicas; 6, Fabiana imbricata.—*J. W.* Lælia majalis, poor form.—*C. H. P.* 1, Aubrietia deltoidea variegata; 2, Saxifraga Rhei; 3, Androsace sarmentosa.—*Veritas.* The species meant is Saccolabium Blumei.—*T. J.* 1 and 2, both varieties of Prunus Padus.—*G. T.* 1, Magnolia Soulangeana; 2, Prunus sinensis, double; 3, Cut-leaved Lime; 4, Vaccinium; 5, Euonymus, probably E. europæus, but the specimen is not mature.—*R. M. P., Paisley.* Both varieties of Odontoglossum triumphans.—*Claremont.* Your flowers were packed too wet, and had decayed. They both appear to be forms of Lælia purpurata.—*G. S.* Prunus Padus (Bird Cherry).—*J. S.* Prunus Padus.—*R. M. H.* Odontoglossum Hallii.—*A. P., Dublin.* The Orchid is Brassia maculata; the other plant, known in gardens as Aralia Chabrieri, is Elæodendron orientale.—*W. P.* 1, Litobrochia biaurita; 2, Dictyogramma japonica; 3, Sedum Sieboldi variegatum; 4, Cyrtomium caryotideum; 5, Polystichum angulare proliferum; 6, Begonia Evansiana (discolor).—*T. H., Glasgow.* Lælia purpurata Schroderi.—*F. J. B., Sussex.* Dendrobium chrysanthum.—*N. T. W.* 1, Brassia verrucosa; 2, Maxillaria picta; 3, Colax jugosus; 4, Oncidium cucullatum; 5, O. flexuosum; 6, Lycaste costata.

PEACHES: *J. G., F. H.*, and *W. J. H.* The common Peach-mildew (Ascomyces deformans). An attack may be prevented by using liver-of-sulphur dissolved in water at the rate of ½ oz. per gallon of water, or by frequently puffing flowers-of-sulphur over the foliage whilst it is in a very young state; doing this frequently whilst it is moist with dew or rain. No fruit once affected by the mildew will develop, and it must be gathered and burnt forthwith.

ROSE LEAVES INJURED, &c.: *F. W. C.* The Rose leaves have been nipped by the frost. The grass is Poa annua, the commonest of all grasses, and usually condemned for lawns, as being an annual.

SWEET PEAS: *Constant Reader.* What you send are Millipedes (Julus), which feed on decaying matter, and do not usually attack living plants.

VINE-LEAVES: *F. M.* We find no fungus on casual examination. Can the scalding be due to drip or syringing? It may be what is called "browning," the cause of which is still obscure.

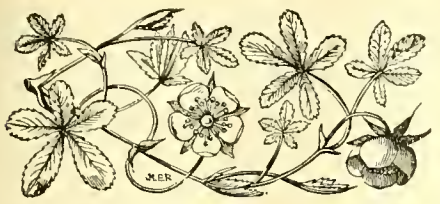
WALLFLOWER: *E. R. C.* Cheiranthus Cheiri var. gynantherus. You will see the petals are absent, and the carpels increased in number at the expense of the stamens. It is not very uncommon, and has often been described in the text books.

YEW FENCE INJURED: *Bosworth.* The girdling or semi-girdling of the Yew branches is apparently due to an insect of some kind, and very probably a weevil or other allied beetle. If you will examine the trees at intervals of about ten days, both during the daytime and with the aid of a lantern at night, you will very probably discover the depredator, when, if you would forward us examples, we should be pleased to suggest a remedy. If you fail to discover the cause by searching, try jarring the branches over a white cloth or sheet, placed on the ground at the bottom of the hedge.

COMMUNICATIONS RECEIVED.—H. H. R.—Leo Farmer delburg—Hedger Wallace.—J. W. McH.—L. M.—(photos).—J. G.—P. W. Voel, Haarlem—M. B., Mid-S. W. F.—E. H.—S. M.—W. A.—C. B.—Rev. C. W. D.—F. H—M. G.—G. R.—F. W. S.—J. A. Dalton—C. S. B.—A. A.—W. B. S.—J. Pentland—W. Morgan—Voute, V. D. Sluys & Co.—E. C.—J. M.—G. H.—H. J. C.—E. J.—H. M. V.—E. S.—A. D.—C. P. R.—J. J. W.—J. D. G.—W. B.—J. W. M.—N. E. B.—H. W. W.—S. C.—W.—W. G.—P. Isherwood—J. A. R.—C. Buckland—J. J.—W. P. B.—F. W. C.—C. H. W.—H. Brierly—S. A.

(For Markets and Weather, see p. x.)

Echium fastuosum, in Dr. Grabham's Garden at Madeira: Colour intense Blue and Red.



THE
Gardeners' Chronicle

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IN PRAISE OF OSIER-LAND.

PLANTING A WILLOW-HOLT.—THE HARVEST AND ITS PROFITS.

DOWN in the flats of Osier-land there are some pretty Arcadian bits of scenery which might touch the sentimental tourist if his heart did not crave for the soaring peaks of the mountains. There is even a poetry-woven romance about every one of our stream-side Willow-holts, or garths, as they patch many a bit of land that would otherwise be a waste swamp, with the glory and sanctity of colour—olive-green, emerald-green, brown and purple, silver and gold, the wind tousling their lanceolate leaves, making the entire jungle bend to its will, moaning sometimes, at other times laughing or singing. Soft lullabies belong to this land of Rushes, Willows, cows, streams, and windmills; but, so far as music goes, when the sun-dried sedges are turning rusty-brown, like the tints on a bittern's neck, the Osiers will often yield to the equinoctial gales in threnodies of despair.

A River in Osier-Land.

Ever since anybody can remember, the country around Ulleskelf, near York, has been dominated by Willow-trees and Osiers. The crystal river Wharfe, so often sung by poets among the hills, where it is born, now serpentines quietly along past willowy banks, where flourish the huge rhubarb-like leaves of the Butterbur, and where huge chub lurk within the Willows' shade; past mole-hill tracts, and thousands of rabbit-burrows, and rows of sand-martin holes; past quaint ferry-boat inns, past green water-grasses, where flourishes the beautiful Meadow Saffron or autumnal Crocus, where the golden Marsh-Marigolds, like things dipped in sunshine, make gorgeous the spring day, and where rows of huge black Poplar trees are before foliage-time brilliant with their dangling crimson catkins. When the young sand-martins first leave their nests in those long tubular tunnels in the river's steep bank they roost upon the basket-maker's Osiers. Often the sprightly black-bonnet or black-headed bunting is seen alighting on reed, rush, or grass, which bends beneath its weight almost to the surface of the water. "Sherrip! sherrip!" says the little bird, lifting its head and displaying its white ermine collar, then it flits along, expanding and closing its tail in a remarkable manner. The red Sallows which mark the river's course, are probably the most useful trees to be found anywhere in the district. They are excellent for basket-making and wicker-work generally; they are also adapted for forming windbreaks or screens, nurse-trees, and hedges, for holding together the banks of a stream, and preventing tons of soil from being washed away. The species of Willow I allude to is "Salix purpurea."

The Basket-weavers.

In the lanes one will meet quaint basket-weavers of both sexes carrying giant reed-maces, or burdened with a huge bundle of buff-coloured "one-year-olds," dripping wet, from their couch; and under the other arm a bundle of "two-year-olds"—that is, white Osiers peeled ready for use. The Ulleskelf scuttle-maker was born among Osiers, he played hide-and-seek among them, he wantonly hacked at the tall rods, and from others he carried toy-whistles; sometimes getting thrashed by his father for trampling down the young plants when in quest of magnificent butterflies and moths, the instrument of punishment being a set of Osier-witheys, which would have looked more proper in a pastry-cook's hands. As a lad he knew better than to carve a whistle out of "Salix purpurea," the bitter Osier, which is invaluable for hedging in game-coverts, inasmuch as rabbits will leave it severely alone. The labourer and scuttle-maker in Osier-land talk of "Pawmers" (Palm-bearers), black Germans, yellow Spaniards, white Norfolks, redskins, blue-buds, stone-rods, merrils, and bitters. He is as indifferent as the poet to fancy botanical names, and you can amaze him by merely mentioning a few, for to his mind the "Oizhier" is such a simple, unromantic sort of thing, that it needs no fancy name.

A Willow-garth Picture.

In autumn, before the frogs disappear to the bottom of the waters, Osier-land is richly endowed with colour, although the harvest will not take place until the following spring. Acre plots of tall Osiers give protection to the smaller-growing, more tender varieties. Velvet Osiers are here, dark sage-green up to the end of October, and the greener the leaf the greener the rod which supports it. Others on the outer phalanx, where they have been weathered and sun-burnt, are purple on the stem. Most magnificent the compact square of Silver Osiers 10 feet high, through which it is scarcely possible for a man to creep without losing his way, so dense are the myriad wands. When the wind sweeps the under-sides of the pointed leaves towards the east, the wealth of frosted-silver almost surpasses a modest man's dreams of avarice. Other plots are defined by their sallow leaf veined with gold, suggesting the species of Willow that Keats must have had in his mind's eye when he spoke of "bright osier'd gold." Ay, gold galore in Osiers; could our English farmers but see it, as continentals certainly have done. Nature herself tells us all about it in Spring, when the palmers, throwing up a score wands from each stock, are magnificently adorned with catkins. These come out first as small ornaments of silver, but they soon assume the appearance of golden silk cocoons, each one covered with splendid filaments like pins stuck in a pincushion, the yellow-dusted anthers acting as pin-heads, and the cylindrical central body feeling like a spongy caterpillar.

Money in Willows.

It was, I believe, the early part of the 19th century before we, recognising the good old precept, "better late than never," began to pay some attention to Willow-growing. It is now time that we grew miles more of these trees. Some forty years ago it was computed that we had an annual importation of Willow-rods and baskets to the value of £100,000. The demand has greatly increased since then, and yet so very unseriously is Willow-growing taken in hand that hundreds of acres fewer are planted than forty years ago. Why cannot home-growers enter more closely into competition with the intelligent people of Belgium and France, whose Osiers are scarcely so good as our own? Almost every day we hear the professors of sylviculture and forestry complain that we are so little alive to our own interests. Willows should be farmed wherever the soil is propitious, and the whole district would benefit appreciably. They grow so fast that, according to a curious old saying in Fenland, the profits which accrue from basket-Osiers will buy the planter a horse before any other tree will pay for his saddle. We may say emphatically that there is money in Willows. A single tree of no great age felled in Essex a few years ago yielded sufficient timber for the manufacture of 1,179 cricket-bats. As to the yield of Osiers under favourable circumstances, we shall have particulars presently. *Harwood Brierley.*

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

SCHOMBURGKIA GALEOTTIANA (*A. Richard*).

In the *Ann. Sc. Nat.*, ser. iii., vol. iii. (1845), p. 23, under Schomburgkia (Lindley), is the following brief description:—"63. S. Galeottiana: sepalis externis planis, non undulatis, labello obsolete 3-lobo, lobo medio apice fisso." Specimens of the plant referred to have been identified in the Kew herbarium with Schomburgkia tibicinis grandiflora; and in the *Index Kewensis* S. Galeottiana is referred to S. tibicinis.

Recently there flowered with the Hon. Walter Rothschild a plant which had been purchased as S. Thompsoniana, but which he recognised as a fine form of the plant figured in the *Bot. Mag.*, t. 4476, as S. tibicinis grandiflora, and at the same time pronounced it "specifically distinct from the typical S. tibicinis, *Batem. Orch. Mex. et Guat.*, t. 30."

By the kindness of Mr. R. A. Rolfe, of the Kew Herbarium, who had previously noted the discrepancies remarked by Mr. Rothschild, and the necessity for recognising S. Galeottiana as a distinct species, I had the material placed before me, and am thus able to record the fine old species.

The comparison with S. tibicinis presents marked differences. In that species the segments are much narrower, and the petals especially closely undulated; the separation of the front

and side lobes of the lip always greater, and in some forms a distinct isthmus lies between the middle and the side lobes.

Schomburgkia Galeottiana has much larger flowers, with broader, and but slightly wavy sepals and petals, and broader labellum of a totally different shape, the rather small emarginate front lobe of the lip being simply divided at the base from the side lobes. The sepals and petals are of a purplish-rose tint, and the side lobes of the lip finely marked with yellow and dark rose. It has the hollow pseudo-bulbs and growth of S. tibicinis and S. Thompsoniana, and as a garden plant it is much the finest of its class. *James O'Brien.*

PREPARING STRAWBERRIES FOR FORCING.

The first step to be taken to produce good forcing Strawberries is to grow plants expressly for the purpose, for unless this be done it is futile to expect satisfactory results. To accomplish this it is necessary to begin at an earlier stage than is at all times carried into practice. An excellent method is to plant out as early in the autumn as they can be had upon a well-tilled open plot of land, strong young plants that have been established in pots. These, if liberally treated, will be robust and healthy the following spring, and push strong flower-spikes and runners. The former should be either entirely removed, or have their fruits sufficiently thinned to prevent the plants being exhausted by bringing them to perfection, while weak runners should be removed. At this stage a mulching of partially decayed stable-manure, and a thorough application of liquid-manure, will be beneficial in strengthening the plants and their runners, and subsequent watering should be supplied if it is found to be necessary; for unless the parent plants are preserved in a healthy state, they will assuredly fail to yield good runners. Three-inch pots are of suitable size to layer the young plants in, and they should be prepared by being properly drained, and filled firmly with moderately dry compost formed of sound loam, inclined to be heavy, mixed more or less according to its texture with dried horse-droppings, or spent Mushroom-bed-manure, after having been passed through a coarse sieve. The plantlets, which should be kept free of extending growths, are fit for layering as soon as they commence to emit roots, and can be kept in position by a peg, their pots being plunged in the mulching material, and as far as is practicable from their parents, so that they derive the full benefit of sunshine. The only attention that they require until they are in a fit condition to be severed from the parent plants is to be kept free from secondary growths, and to be properly supplied with water. These are, however, essential matters that must on no account be neglected; and at the same time the parent plants should be regularly relieved of late runners, and not be permitted to suffer from want of water.

As soon as the plants have sufficient roots to enable them to properly support themselves, they should be cut free, and placed in a semi-shaded position, where they should in dry weather be occasionally syringed overhead; but no time must be lost, once they have recovered from the check, in shifting them into their fruiting pots. Pots 5½ inches (inside) in diameter are suitable for plants that are to be early forced, and 6¼-inch ones for those intended for late use. Late-forced plants, being more exposed to air and warm sunshine than are those that are early-forced, require more water than the latter do; but labour is saved in this matter by using for them pots of the larger size, though smaller pots than those recommended are sometimes used.

In potting, efficient drainage should be ensured, the crock-sherds being covered by a thin layer of dry moss, coated with dry soot. We, however, as a preventive to the ingress of worms, place a piece of wire-gauze over the drainage hole of the pot. Compost similar to that advised for layering the runners in, except that it is used in a coarser state, and has a little dry soot added to it, answers well. Being tolerably dry, it can be well firmed by a rammer in the pots, which is very essential to the wellbeing of the plants, and this without unduly preventing porosity, while care must be taken to allow of ample room for a good supply of water. It is not desirable to make use of a very rich compost in potting, and it is better practice to afford stimulants in the form of liquid-manures where nourishment is most wanted.

For a time, until they require increased space, the plants, after being potted, should be stood close together, so that their pots shade each other, in an open space, upon a bed of ashes, and be occasionally sprayed overhead. Watering will now require to be very carefully attended to, as by giving much at this stage, before the roots have made good progress, mischief is readily done; at the same time, the plants must not be allowed to suffer from the want of it. Runners and side growths as they appear should be removed; and as soon as the roots have well ramified the soil, assistance should be given by affording regular supplies of diluted liquid-manure.

Cool frames, where they can be protected from severe frosts and an over-abundance of rain, are excellent winter quarters for Strawberries in pots; and protection of this description should at least be found for plants to be early forced. But where convenience of this kind cannot be had, as it rarely can be for large quantities of plants, the pots should be plunged in a bed of fine ashes, placed in the open, and be protected from severe frosts by bracken or long litter. It is an easy matter to overlook plants that are intended to furnish a late supply of fruit, and allow them, if the weather proves to be dry, to become injuriously dry, while they remain plunged in the way indicated. This should, however, be strictly guarded against; indeed, after they have commenced to grow they should occasionally be supplied with liquid manure.

It may, in conclusion, be remarked, I hope without egotism, that by carrying out the above practice, combined with that published on p. 181, excellent crops are produced, some of the individual fruit of Royal Sovereign having this season attained 1¾ oz. in weight. *Thos. Coomber.*

Fig. 129.—Rhododendron dalhousiæ.
Grown in Mrs. Currie's Garden, Hay Lodge, Trinity, Edinburgh.

RHODODENDRON DALHOUSIÆ.

Mr. J. W. McHattie, Superintendent of the Edinburgh Public Park and Gardens, to whom we are indebted for the opportunity of illustrating this plant (fig. 129), supplies the following particulars: "It carried this year 223 trusses and 1,123 blossoms. It is grown in a tub; its height is 4½ feet, and diameter 5 feet 9 inches. It grows in Mrs. Currie's garden, Hay Lodge, Trinity, Edinburgh, along with several other well-grown greenhouse Rhododendrons, which reflect great credit on her gardener, Mr. Alex. Johnston."

[This beautiful epiphytal species, a native of Sikkim, and introduced in 1850, has lemon-scented flowers to the number of three to seven in umbellate trusses; calyx large and deeply divided into five foliaceous lobes; corolla white, with sometimes a tinge of rose, 3¼ to 4 inches long, and as broad at the mouth; lobe, broad and spreading. April to July. The plant is half hardy. Ed.].

ASPARAGUS SCANDENS.

This, though not a new species, is but little known in cultivation. It is one of the prettiest, as well as one of the hardiest, of all the evergreen Asparagus, thriving perfectly in an ordinary greenhouse. It received a Certificate of Merit from the Floral Committee of the Royal Horticultural Society in January, 1902, under the name of Japonica. Subsequently specimens were sent to Kew, and in consequence of the report received from there, it was again brought before the Floral Committee at its last meeting, when it was officially recognised as Asparagus scandens, and the award confirmed. The illustration (fig. 130) is from a plant growing in a 5-inch pot, and shows it thickly studded with its small white blooms, which are followed by bright coral-red berries. In either of these states it remains a long time, and is highly ornamental, and but little less so in every stage of its growth. The foliage is of a bright green colour, and of hard glossy nature, and very durable in either a cut or growing state. It was introduced by Messrs. Elliott, Courtbushes Nursery, Hurstpierpoint, Sussex, to whom we are indebted for the specimen figured.

Fig. 130.—ASPARAGUS SCANDENS.
(From a Specimen forwarded in April by Messrs. Elliott.)

SEED TRADE.

Exhibition Vegetables from Seeds. — The sale of plants of pedigree vegetables in pots is an unusual development of the seed trade. The sale of plants drawn from prepared beds in frames was probably introduced by Mr. James Dobbie, who is still living, hale and hearty, at Rothesay; but it has been considerably developed by his successors in the business of Messrs. Dobbie & Co., seed merchants, Rothesay. In many parts of the United Kingdom, and especially in Scotland, and in the midland and northern

districts of England, there is an enormous number of amateur gardeners, mainly among working-men, who not caring to take the risk of raising plants from seeds for themselves for exhibition purposes, prefer to purchase them; and it is to meet such requirements that the Rothesay firm grow plants very largely and specially for the purpose. It is an unusual sight to see in large greenhouses huge batches of Leeks, Parsley, Celery, and Onions in pots; it is to this quartette that the sale is confined. Two strains of Leek are grown for the purpose, viz., Dobbie's International Prize, which is most in demand, being the longest, and Dobbie's Champion. The chief characteristics of an exhibition Leek are length of blanched part (14 to 18 inches), equal thickness the whole length, whiteness, not to be what is known as Onion-headed, and the absence of any scar or split. Two sizes of Leeks are grown in pots—one in 4½-inch pots, the plants from 20 to 30 or more inches in length; these are not sent out until May 13, a date which is named in Messrs. Dobbie & Co.'s catalogue, so that intending purchasers may get their trenches prepared for planting out as soon as the plants can be despatched. Plants in these pots fetch 6s. per dozen, and they can in the case of small quantities be sent by post, turned out of pots, as by the time of despatch they have formed firm balls of roots; or a paper is wrapped round each plant, and they are stood upright in boxes, and so despatched. A second-sized plant is grown in 2½-inch pots, and they are retailed at 3s. per dozen, and distribution commences on May 11. Brown paper collars 6 ins. in length are supplied; these are placed round the plants by slipping them over the top, and a few inches of soil is drawn up round them. In about three weeks the heart of the plant will have grown above the collar, which is then raised, and earthed up again, and so on until 12 inches or so of blanched portion is secured. Some 1,800 plants are grown in 4½-inch pots, and some 5,000 in the smaller size; while in the open air could be seen some fifty frames of Leeks, it being computed that each sash covered 4,000 plants. These plants are all raised in hotbeds, and they are supplied between the 3rd and the 18th of April to purchasers, who pot them and grow them on in a frame or greenhouse. Up to April 18 these plants are sold at 6d. per dozen, after that the price is doubled. When one thinks of 200,000 Leeks being grown in frames, in addition to those in pots, it is seen that the demand for plants must be enormous. Blanching by means of soil is held to be the best method adopted of securing that snowy whiteness so much coveted in this esculent as an exhibition subject.

The Onions, grown also in pots of two sizes, similar to the Leeks, consist of Dobbie's Golden Globe, Cranston's Excelsior, and Dobbie's Selected Ailsa Craig. Onions are not nearly so numerously grown as Leeks—about 400 plants in the large-sized pots, and some 2,000 in the small-sized. In addition, there are some eight sashes of smaller plants. Golden Globe is the most popular variety, and next Excelsior. Planting-out in April or May, of course in ground deeply trenched in October, and into which manure is liberally worked. A dressing of soot and artificial manure is given at the end of February, and a mulch of short manure early in growth.

Though some plants of Celery are grown in pots, about 1,000 in the small and a number in the large, there were quite forty sashes of plants in frames, the varieties being Dobbies' Selected Red and their Invincible White. The plants are placed out in richly manured trenches, in which the roots soon find their way down to the rich manure below. The blanching of Celery for exhibition is begun in July, by stripping off from the plants any side shoots and decayed leaves; some fertiliser is applied, and the soil taken out of the trench pushed into it to the depth of 6 inches. Next come the operation of placing a band of brown paper, 2 feet long by 6 inches in width, loosely about the plants above the level of the soil which was pushed into the trench, so that from the base of the leaf-stems to the top of the paper will secure about 12 inches of blanched portion. This will suffice for plants for early exhibition; for later shows the band of paper should be 9 inches in width. Soil is heaped up loosely against the paper.

There yet remains Dobbie's Selected Parsley, this is also grown in pots, and so exhibited, and the large number of prizes awarded to this Parsley in a season is the best testimony as to its value. Parsley is grown in richly manured soil, and the best plants are lifted on the morning of the show with a good ball of soil attached to the roots, and potted, it being the custom to exhibit Parsley plants in pots, one plant in a pot. *Pisum.*

ALPINE GARDEN.

SOME RED OR PINK FLOWERED SAXIFRAGES.

S. Rhei.—We have few more charming alpine flowers than this pretty member of the mossy section. Although not by any means new to cultivation in Great Britain, it has not yet become popular. It was distributed for a time under the name of S. globosa, a name under which it is yet to be found in several gardens, but Rhei, or muscoides Rhei appears to be its correct appellation. It forms a pretty cushion of dark green leaves, from which arise the stems, which are about four inches in height, unless drawn by surrounding vegetation, each bearing several flowers about the size of a threepenny-piece. These on opening are a deep pink tint, but gradually become of an almost blush-white. Like most of the mossy Saxifrages, S. Rhei likes a rather moist position, especially if it have not a little shade. When it attains sufficient size it is an exceedingly pleasing plant, particularly when placed at the edge of a rocky path, at the base of a rather low lying rockery. It comes fairly true from seed, but from its variations we have secured such valuable varieties as the following two, which have received names.

S. Guildford Seedling.—By some this is said to be a hybrid, but there is no evidence that I know of to support this, and as blood-red varieties of S. Rhei have appeared in several gardens, there is no warrant for calling it anything but a variety of S. Rhei. It is a valuable Saxifrage, its flowers being of a bright and rich tint of blood-red. It seems quite as free in its habit as the typical S. Rhei.

S. Fergusoni.—Of garden origin, this should have had a name in accordance with the now recognised and desirable practice of giving an English name to the plant. I do not think that it is much known in gardens, and, so far as I know, it has not been submitted to the Floral Committee of the Royal Horticultural Society; but, from what I have seen of it, I anticipate that Guildford Seedling will prove to be the finer plant of the two. S. Fergusoni would, however, have attracted a good deal of notice had it been sent out soon after S. Rhei, and even yet it appears a flower worth growing by all who care for this interesting genus. Here it is dwarfer than either Rhei or Guildford Seedling, while its flowers are also of a lighter colour than those of the latter, though much deeper than those of Rhei itself. I believe one or more blood-red forms of S. Rhei have also appeared in the garden of Rev. C. Wolley Dod at Edge Hall, Malpas, but I have not seen them.

S. muscoides atro-purpurea.—This old favourite I mention now for the sake of completing the series of mossy Saxifrages with pink or red flowers, so far as I am acquainted with them. It is known by its dense habit of growth, and deep blood-red coloured small flowers. While the authorities class this and the plant we know as Rhei, with its forms, as merely varieties of S. muscoides, I feel inclined to take exception to the inclusion of S. Rhei with this species at all. Of course, the Saxifrages are so puzzling and difficult to distinguish satisfactorily that these authorities may be correct, but those who have grown the forms under notice will be unwilling to place Rhei and muscoides together as belonging to one and the same species. These remarks are, however, to be taken as more academic than anything else, as it is practically impossible for me to be positive on the point.

S. Grisebachi.—This new species has almost leaped into popularity since it was certificated by the Royal Horticultural Society this year, and was, in consequence, largely figured in the horticultural papers. Readers of the *Gardeners' Chronicle* will be familiar with its appearance, so far as its outline is concerned (see *Gard. Chron.*, February 21, 1903, p. 123). As growing in the open, a far better test of the value of an alpine plant than a specimen cultivated in a pot, S. Grisebachi quite fulfils one's expectations, although the red flowers are duller than those of Guildford Seedling. As will be remembered, however, it belongs to the Euaizoonia, or encrusted section, and is thus entirely distinct both in its foliage and its inflorescence. The leathery, dotted-margined rosettes of leaves are pretty, and from the centre of the flowering rosettes there rises a short, densely-flowered raceme of dull red blooms. I do not know of any Saxifrage of exactly the same character, and we may, I think, look upon it as a valuable garden flower for those of us who can appreciate the different features of the genus Saxifraga. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

NOTES FROM EATON HALL GARDENS.

It is the usual custom to visit horticultural shows for the purpose of seeing something new or better than we have seen before, and we are not often disappointed; but shows are not quite such good schools as are well-managed private establishments, where we may get an insight into the art of producing the best of everything required by a county family. It has recently been my good fortune to have the privilege of looking over the beautiful gardens at Eaton Hall, Chester, where everything possible had been prepared for the visit of the Prince and Princess of Wales. It would require a more skilful pen than mine to do justice to the high cultural condition of the many fine new plants I observed there, then just at their best; so I will confine my remarks to what I think are likely to prove generally useful, and which are much above the ordinary standard. Prominent amongst these was a large span-roofed house full of a lovely new bright rose-pink Malmaison Carnation, a seedling raised at Eaton, and certificated by the Royal Horticultural Society last year, which Mr. Barnes has appropriately named the Duchess of Westminster. The habit of the plant is good, dwarf and compact, the grass short-jointed, and of a pleasing glaucous green; the flowers very durable, smooth-edged, shell-petalled, of good substance, borne on medium but rigid stems, from 9 to 12 inches high, and a calyx that does not split. Mr. Barnes considers this a serviceable link between the winter-flowering Tree Carnations and the ordinary Malmaisons, which last are amply illustrated by this fine lot at their best: and the majority of the Malmaisons only just beginning to open their buds. What few were open were very good—very little short of 6 inches in diameter. I may here add that Mr. Barnes hinted that this useful acquisition might be put into the market as soon as a sufficient stock could be spared without curtailing the home supply. Another fine feature was seen in a batch of Sir H. Macdonald, a pleasing Picotee-like Carnation, with cream coloured ground, edged with bright pink, I believe one of Mr. Cutbush's

raising and distributing. Another large house was filled with plants of Liberty Rose just in their glory, with hundreds of their delightful, cardinal-red buds. This variety appears to force well, as also does Mrs. Grant, a silvery-pink coloured Rose, which are both of Dickson's (Newtownards) raising, and most useful for cut flowers.

There were a few plants in bloom of the Pink Pearl Rhododendron, the trusses as large as a football when grown under glass. This is a sweet-looking, delicate flower of great substance. The long corridor was lined from end to end with Schizanthus of Mr. Barnes' own selecting. Although somewhat common, it is when seen in such perfection a really pretty plant.

The recently added Dutch garden will, with a little good weather, become one of the outdoor features of Eaton, being planted with all the best things irrespective of cost; but the recent weather has been unkind to many of the things that should have been now at their best. The requirements in fruits and vegetables, though very great, are easily met, enormous quantities of everything being grown—Melons, Strawberries, Figs, and some of the finest Rivers' Nectarines, Pears, Apples, Plums, and Grapes without end were noted. Mr. Barnes, too, started two 36-inch Romaines & Sims' petrol-motor mowers, which do their work beautifully. They are very compact, and a great improvement on anything I have seen in the way of a garden-machine. *J. H. Goodacre.*

BULB-GROWING AT BRENTWOOD.

At Brentwood, in Essex, at the nursery ground adjoining his residence at Seven Arches, and in a much larger space on the Ingrove Road, Mr. Leonard Brown is engaged in the interesting experiment of determining whether it is possible to compete in this country with the Dutch bulb-growers. He has set himself the task of showing whether "Holland in England" is a mere sentiment, or a possible reality; and I think he demonstrates in the most conclusive manner that, as far as the cultivation of Daffodils and early Tulips is concerned, that he can hold his own with the Dutch growers.

Daffodils and Tulips are Mr. Brown's two main specialties, but he grows a general collection of bulbous and other hardy plants, and he is also a seedsman. Commencing in a small way, he has found his business increase, more ground to be needed, and new features added. It is Mr. Brown's aim to grow all the bulbs possible which he sells, the Hyacinth and a few others excepted, which have to come from Holland and elsewhere.

Of Daffodils Mr. Brown has a good collection, and he makes additions of the newer varieties as soon as he realises they are worthy of his attention. At the Ingrove Road nursery he has to do with a stiff loam; the land was formerly under grass, this he broke up deeply, and having an abundance of vegetable refuse at hand he burnt it, and added a good dressing of the ashes to the soil, trusting rather to artificial manures than to crude farmyard material. Seeing that he has had the land under cultivation for some three years only, he is gradually forming a soil that appears to suit Daffodils and Tulips remarkably well, as can be seen by their fine development. Of the newer Daffodils he is forming good breadths of Madame Plemp, Madame de Graaff, Glory of Leyden, Princess Louise, Mrs. Camm, &c. The more popular standard varieties he grows largely, and he computed that though practically a young beginner, he had some 45,000 bulbs of Daffodils; a bed of 3,000 Sir Watkin was in the finest character when I observed it.

Asked which he considered the best varieties for market and decorative purposes, he named the long trumpet section, Empress, which he prefers to Horsfieldi, as possessing much more substance, and also because it stands better;

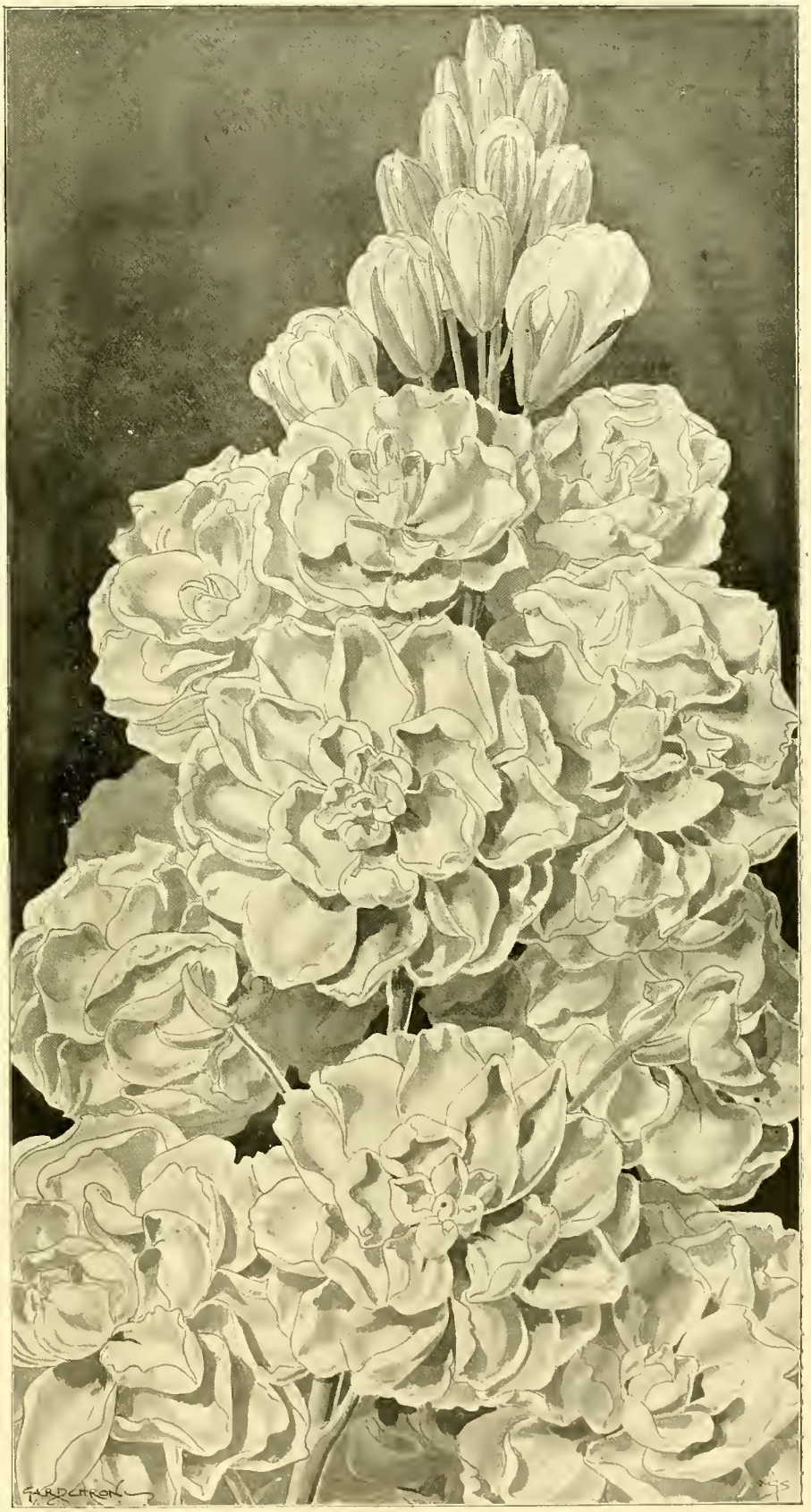

Fig. 131.—Giant Stock Excelsior: flowers white.

(From Messrs. W. Bull & Sons' Establishment.)

See Report of the Meeting of the Royal Horticultural Society of May 19, p. 333, in our issue for May 23, 1903.

Emperor, Princess Ida, a pretty variety, having a large trumpet for the size of the bloom; Maximus, Mrs. Walter T. Ware, a handsome bicolor, which Mr. Brown thinks will become very popular in the market; Madame de Graaff, and Queen of Spain. Of the smaller-cupped varieties, Sir Watkin, C. J. Backhouse, with its richly-coloured cup; Barri conspicuus, Flora Wilson, Duchesse de Brabant, Frank Miles, which Mr. Brown regards as the best Daffodil grown for table decoration, as it stands up stiffly, and as he remarked "always looks you in the face"; Minnie Hume, Mrs. Langtry, Queen Bess, and Stella superba. Of the small-cupped varieties, he thinks highly of Agnes Barr, Vanessa, and Poeticus ornatus.

Mr. Brown is in favour of early lifting, that is, as soon as he thinks the bulbs are ready; and in reference to planting he says, "plant early for the best results. Plant fairly deep, and, if possible, mulch the beds during the winter to preserve the bulbs from the effect of frost." He plants deeply; he said some of his bulbs were placed 8 inches deep in the soil. If he has reason to think any of his Daffodils are affected by the larvæ of the Daffodil-fly, he plants late, as there is then a chance of ascertaining the presence of the larvæ in the bulbs, as they become partly hollow.

Three acres of Tulips is Mr. Brown's contribution to "Holland in England;" he concluded he had some 16,000 bulbs in all. He states in the most positive manner that he can grow Tulips equal in size and finish, and as well matured as any he can purchase from Holland. He puts his practice in a nutshell: have a deep free soil in which to plant, plant and lift at the proper time, and success is certain. There was a bed of 1,700 Keizer's Kroon, and such flowers, large, brilliant, and solid! Chrysolora, a yellow self, so fine that I could scarcely believe it was the actual variety; Vermilion Brilliant, Proserpine, M. Tresor, a fine deep yellow self; Joost van Vondel, and its fine white sport; Sir Thomas Lipton, crimson, flushed with scarlet, solid blooms of fine substance; Maes, rich crimson of fine shape; white Pottebakker, Cottage Maid, a delicate rose-pink variety; Golden Queen (new), a really very fine deep yellow; Duchesse de Parma, Van der Heer, rich purple, quite distinct; Ophir d'Or, another yellow self; white Maximus, Van Thol, a very fine early dwarf variety; an equally fine yellow Van Thol, &c. Two features about these Tulips struck me: one was the large size and brilliancy of the flowers, the other the vigorous foliage. Mr. Brown said, and there was evidence that his statement was a correct one, that he can produce Tulip bulbs equal to any he can import from Holland, and in not a few cases better. As Mr. Brown has made his soil suitable for the purpose, others can do the same. I am not revealing any secret when I state basic slag to be the foundation of the fertilising material he employs to produce such fine results.

In his nursery at Seven Arches can be seen Dogstooth Violets, Grape Hyacinths, Fritillarias, Chionodoxa, Scilla sibirica, various forms of Iris, in fact many plants too numerous to mention; and Mr. Brown reaps the same success with them as with Daffodils and Tulips. At each nursery there is a broad area of turf on one side, and here he plants various Daffodils in clumps, illustrating how they can be employed in the embellishment of semi-wild places.

It is not the extent of the grounds at Brentwood which strikes the visitor most, but the success that has attended the attempt to compete with the foreigner. Mr. Brown is not alone in the work; but a narration of what he can accomplish with so much success comes as an opportune lesson for others to go and do likewise. *R. D.* [We remember bulbs being grown in Kent, but although they were as good as those grown in Holland, the trade would not buy them because they were not called Dutch bulbs. In the end, the late Louis Van Houtte came over from Ghent and bought the whole stock! ED.].

PLANT NOTES.

AGAVE APPLANATA VAR. PARRYI.

A LARGE part of the interest of a garden lies not only in the blooms of the plants it contains, but also in the forms and habits they display. It is superfluous to give examples of this in ordinary gardening, for the truth of the remark is self-obvious to all who take pleasure in a garden. In the rock garden, however, we do not always realise this, yet a glance at some of the encrusted Saxifrages, the Sempervivums, or at such an uncommon plant as Mesembryanthemum uncinatum, will illustrate the point I wish to convey, that growers of alpines are much indebted to such plants. One of our latest acquisitions of this kind is Agave applanata var. Parryi, which affords us warrant for thinking that it is likely to be hardy in our climate, and which, if it will stand our most severe winters, will be a valuable plant. Coming from a height of from 7,000 to 8,000 feet in the mountains of the central United States, one would anticipate that its greatest trials would consist in our wet climate. So far, it does not appear to have suffered in the least degree from an exceedingly wet winter, even when quite exposed in the open. It looks very distinct from the other denizens of the rock garden, with its rigid habit and its long, sharp spined leaves. Whether it will flower with us remains to be seen, as also the size to which it will attain. It is evidently a slow grower; not altogether a drawback. I have it here on a rockery facing south-west, whence almost all our winter rains come. *S. Arnott.*

The Week's Work.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury.

Odontoglossum grande.—This plant is an inmate of the intermediate-house, and will now be claiming attention, it having been at rest since the pseudo-bulbs matured last year. The season has arrived when the roots begin to move, and repotting should be carried out forthwith. It is a plant which thoroughly succeeds in a compost consisting of Oak-leaves two-thirds, and peat one-third. The drainage should be ample, and the surface covered with a layer of clean sphagnum. It will be very necessary to afford water carefully for some time afterwards, or the young growths may damp off, especially if water lodge in them.

Thunias.—These plants, if repotted in the manner recommended in an earlier Calendar, should now be afforded water copiously at the root. The flowers being about to expand, a small quantity of much-diluted drainings from a cow-shed may be applied with benefit to the plants. After flowering, the plants should be removed to another house, and afforded more air and sunshine. In order to keep them free from thrips and red-spider, they should be freely syringed twice or thrice daily.

Cymbidium Lowianum.—In order to succeed with the species, the cultivator should afford the plants a cool-house. At Westonbirt it is grown in a cool intermediate-house, which is kept a few degrees higher than the Odontoglossum-house. Here, when grown in a moist atmosphere, and the leaves well syringed on the lower side whilst making growth to keep it free from red spider, it flowers well. The flower-spikes will have been, ere this, removed from the plant and new growth begun. This being done, repotting may be carried out, although this should be refrained from as long as the soil is not sour, a pot-bound state being productive of flowers. However, should there be a lack of room in the pot for the new growth to develop, the plants should be allowed to get dry and then be removed from the pot by breaking the latter. The new pot should be sufficiently large to accommodate a plant for several years; and a depth of about 2 inches of crocks should be placed in the bottom, and over these a layer of turfy loam. The compost should consist of rough turfy loam two-fifths, turfy peat two-fifths, and rough Oak-leaves one-fifth, adding plenty of silver sand to the whole. Let the potting be firmly done, and the ball of the plants kept about 1 inch below the rim. Large specimen plants that have got in a bad condition at the roots should be broken up, and the pieces potted separately, it being much better to cultivate young plants than to make up large pots from small pieces; no water should be applied for a week after repotting, and then it should be thoroughly soaked, which will suffice for a long time. Established plants should never be allowed to become dry at any season, and during the autumn when the bulbs are developing, more than at other times need water. Weak farmyard manure may be applied occasionally. If the plants can be arranged together in a part of the house where the late afternoon sunshine can reach them, they will benefit greatly.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Primula sinensis, double white.—Plants that may have been moulded up in March will be in a fit state for division. In carrying out this operation, divest the mother plants of the whole of the soil, and with a sharp knife remove each growth with as much of the root attached as possible, and place these pieces in 3-inch pots, using light sandy soil; then apply water with a fine rose, and place either on gentle bottom-heat or in a cold pit or frame near the glass, and keep the plants close for a few weeks, shading from the sun, and lightly syringe the leaves once or twice daily in bright weather, but apply little water at the root till the plants begin to grow. At that stage ventilation should be afforded carefully for a week. All flowers should be pinched out as soon as visible.

Tuberoses.—Let successional batches of these bulbs be potted singly in 48's, and place them on mild bottom-heat, affording no water till growth has begun, and then only sparingly, or decay will soon set in. Shift into 6-inch pots when more root-space is required, and the flower-spike pushes up, applying manure-water at that stage. When repotting, and afterwards, remove every side-growth from the bulbs. Grow on in a temperature of about 60° at night, till the first few flowers expand, then remove to the conservatory or show-house. During growth, keep the foliage well syringed.

Liliums.—Bulbs potted late in the season should be top-dressed with loam, a small quantity of leaf-soil, and a sprinkling of bone-meal and coarse sand or fine mortar-rubble. Tie each growth to a neat stake, being careful of the bulbs when pushing it down, and either fumigate with tobacco, or dust with tobacco-powder at the first approach of green-fly; and should it be necessary to retard the flowering of the bulbs, stand the pots under a north wall plunged in a bed of coal-ashes, applying water, which may be alternately clean and manurial, after the roots show on the surface of the soil. L. longiflorum, and the variety Harrisii, may also be stood out-of-doors to ripen up their growth when flowering has ceased.

Richardia africana.—Place these plants in the full sun out-of-doors, and gradually withhold water, laying the pots on their side as soon as growth is ripened, and keep them without water until the end of July or early in August, if the stock is kept in pots the whole year through, otherwise the plants can be put out into trenches after the middle of June—a space of 15 inches being allowed between each plant.

Euphorbia (Poinsettia) pulcherrima.—Insert cuttings of these when 3 inches long, taking them with a slice of the older wood attached. Place one in a 60 or thumb-pot, keeping the cutting close to the side, plunge in bottom-heat of 75°, and keep close and shaded until rooted, when they must be gradually inured to the air of the house.

FRUITS UNDER GLASS.

By T. H. C.

Vines.—The young Vines raised from eyes having filled their pots with roots, should be shifted into 10-inch and 11-inch ones, in which they may fruit next year. Let clean and well-drained pots, and a compost consisting of two-thirds best turfy loam, roughly chopped up, and a third of equal parts sifted horse-manure and leaf-mould, a small quantity of charcoal and old mortar-rubble, and a 6-inch potful of Thomson's Vine Manure to every barrowful of compost, be made use of. The plants should be potted firmly by means of a rammer. For a few days after shifting, shade from bright sunshine, but afterwards expose them to the light, and afford a temperature of 80° to 85° by day, and one by night of 70°. Ventilate the house freely in fine weather, syringing the foliage twice daily, and otherwise maintaining a moist atmosphere.

Planting Vines.—The present is a suitable time to plant Vines raised from eyes in the winter, a practice which has much to recommend it. Prepare the border as advised in the calendar for March 14, commencing with a small one, and adding to it yearly as the roots extend. Whether the plants have been grown in pots or boxes, great care should be taken not to injure the roots, but merely to loosen them at the sides of the balls, and spread them out at various depths in the upper 8 inches of the border. Plant not closer together than 3½ to 4 feet, press the soil firmly about the roots, and apply tepid water so as to settle the soil about the roots. A mulch of spent Mushroom-bed manure may then be applied. Shade the tops heavily, and syringe the foliage thrice daily until the Vines are growing freely, when shading may be gradually dispensed with, and the syringing carried out only twice a day. Afford plenty of air in favourable weather.

Figs.—Pot-trees from which the first crop has been taken should be cleansed, and the roots afforded a top-dressing of loam, a small quantity of bone-meal and mortar-rubble, after loosening the surface-soil. Thin the second crop of fruits if these are too numerous. Apply water carefully, syringe twice daily, keep the house moist, and afford air as freely as the weather will allow.

Succession-houses.—Liquid manure may be applied freely to trees bearing heavy crops of immature fruits; and disbud, stop, and tie-in growths as previously advised.

Melons.—Plants having fruits approaching ripeness should have a constant circulation of air, sufficient moisture applied at the roots as will prevent the flagging of the leaves. As soon as a good set is obtained on the later plants, apply a rich top-dressing to the bed. Let the bearing shoots be so regulated that the fruits are regularly disposed over the bine, and remove all barren shoots. Fertilise the female flowers daily. The temperature at night should be kept steadily at 70°, and by day at 80° to 85°.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Applying Mulches and Water.—A mulch of spent Mushroom-bed dung or decayed stable-litter applied to light or sandy soils saves much labour in affording water; and rows of Peas and Runner Beans should have a mulch 2 inches in thickness, and 18 inches in width placed on both sides. In the case of forward Peas weak liquid-manure may be afforded occasionally. Spring-planted Onions and Leeks should be mulched with spent manure reduced to a fine state by beating or sifting, the ground being hoed before the mulch is applied. Owing to the coldness of the nights, water should be applied this year soon after midday.

Cauliflowers.—Those which were planted early and are now forming heads, may be afforded weak liquid manure-water when the soil gets dry; whilst later plantings should be examined, and all faulty plants made good by sound ones taken from the seed or the nurse-beds. Continue to plant out from the latter any that are sufficiently large and well-rooted.

Brussels Sprouts.—Transfer the plants from the second sowing to the open quarters as soon as ready, allowing a space of 2½ by 2 feet between the plants. Ply the hoe among the earlier-planted Brussels Sprouts, now well established.

Cabbages.—Plant out from the seed or the nurse-beds in showery weather, and if planting must be carried out in dry weather, draw shallow drills, which moisten twenty-four hours before planting. Beds of young Cabbages and Savoys should be frequently hoed, and the surface rendered friable and open. Seeds of Coleworts may be sown once a fortnight for the present, and the plants set out as opportunities offer. The plants will turn-in towards the autumn and later in the year.

Tomatos.—Those plants which have been hardened off sufficiently may now be set out on a warm border, or against a wall having a south aspect. If on a border, plant from 3 to 4 feet apart; and if in rows, let the distance between the rows be not less than 5 feet. Train each plant with a single stem, which fasten to a stout stake.

Vegetable-Marrows.—The plants of the main crop may now be planted. Here, on very light, dry land, and where water is not too plentiful, I have had the best results from Vegetable-Marrows planted in trenches having a width of 4 feet, and three-fourths filled with decayed stable-dung, over which was placed some of the earth taken out of the trenches. The plants were put out singly down the centre of each trench at 3 feet apart, the soil made firm round the roots, and afforded water and shade till the plants get established. On heavy soils, ridges 2 or 3 feet in height and about 4 feet in width are better than trenches. Fruiting plants in frames and pits should be well supplied with water at the root, and occasionally with liquid-manure. The frame-lights may now be removed entirely, and the plants allowed to ramble beyond the confines of the frames. Ridge Cucumbers may be grown in much the same manner as Vegetable-Marrows, but the plants should be put out triangularly at 3 feet apart. When well established, the points of the shoots may be nipped out once only.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Bedding-out.—At the time of writing, a glorious change in the weather has arrived, which will, however, prove trying to newly planted-out stuff. It will be advisable in some parts of the country to suspend planting operations during the middle of the day while the weather is so warm, resuming them in the afternoon and evening, the latter being the best time of all. Annuals lifted from the beds in which they have been pricked out, should be shifted with care, and transferred quickly to the beds, and the soil pressed firmly about the roots, water being applied forthwith. Stocks suffer a good deal on being disturbed, they should be shaded with tiffany during bright sunshine. Overhead applications of water should only be afforded in the evening.

Border Carnations should have the flower-stems tied loosely to neat green-painted or brown stakes, and the soil of the beds hoed. Agricultural salt in quantities not exceeding 2 ozs. per square yard applied once in three weeks, forms a good stimulant to Carnations. A slight mulching of leaf-mould or of turfy-loam in a state of decay is of service to the plants.

Annuals.—Annuals, the seeds of which were sown a few weeks ago in vacant spots in the herbaceous, perennial, or other borders, will be in a fit state for thinning, so that the plants do not become crowded; but in view of losses which may be caused by slugs, the final thinning should not be carried out. It is prudent, however, to err on the side of excess of thinning, crowded annuals always looking poor and insignificant, having only a short season of flowering. A further sowing may be made of any subjects that will come into flower in the autumn.

Biennials.—At the present season should be sown such biennials as Hollyhocks and Canterbury Bells; and of the former, seedlings are more certain to give satisfaction than plants raised from offsets. Lobelia cardinalis seed should be sown at this date, scattering the seeds pretty thickly on the surface of the soil of a well drained box or pan, which should be placed in a frame, and kept moist and shaded.

Climbers.—Let the growths of climbing Clematises be regulated and secured in position at short intervals of time. The various Clematis are making very rapid growth this year, which may be due to the heavy rains which fell early in the present month.

Walks.—Where "weed-killers" cannot be used on account of game or poultry, gravel walks should be thoroughly weeded with a knife, or the plants will seed, and cause much trouble a little later. Grass edges to walks should be frequently clipped, and advantage taken of heavy showers to roll the walks smooth and hard.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

The Strawberry.—With the genial temperatures that have prevailed since the abundant rainfall, the plants are now pushing up their flower-trusses, and the present affords a suitable moment for hoeing the land between the plants. If slugs give trouble, as they will in most gardens, sprinkle fresh soot beneath the leaves of the plants. This being done, apply a mulch of strawy litter close up to the plants, and covering the intervening land between the rows. Plants set out last autumn, or in March last, should have all of their flowers pinched out; or in the case of new varieties which it is desirable to prove, the fruit should be severely thinned. A strawy mulch should be afforded the plantation. I obtain the earliest fruits from young plants put out at 1 foot apart on a south border in the month of August, which are destroyed as soon as cropping ceases. Royal Sovereign is the variety mostly grown here, and fine fruits are obtained by this method.

The Raspberry.—The late frosts will have injured the canes in some gardens, and it will be good practice to remove these and let the canes, now showing in quantity above the soil, grow on to take their places. A light dressing of spent hot-bed manure may be used as a mulch between the rows and around the stools, unless the land is naturally cold and moist, when mulches of all sorts are better dispensed with.

Hints on Work in General.—Take advantage of fine weather to ply the Dutch-hoe between the small-fruit bushes, a friable surface preventing undue evaporation of moisture; and let the wall tree borders, if much compacted by being trodden upon, be lightly pointed with a fork. Apply water to recently transplanted fruit trees, and if there is the slightest sign of shrivelling of the bark, syringe the trees with the garden-engine in dry weather. The same kind of washing will clear bush and standard fruit trees of the dead blossoms, &c., and tend to healthy growth.

THE APIARY.

By EXPERT.

Preparing Sections.—In purchasing comb, care should be taken that this season's goods are bought, and not old comb. All comb found to be a little brittle should be placed in the sun, or near the fire, when it will lose its brittleness. All foundation should be of a good yellow colour, and not dark; the "Weed" foundation has been well tried, and found to be a good article. All shallow frames should be wired, as the constant use of the extractor soon causes the combs to break away. Leaky roofs should be made good forthwith. Hives or boxes not on legs should be placed on bricks, with pieces of quartering laid on the bricks, for bees suffer severely from damp, and if the floor of a hive is damp, other parts will soon get mouldy.

TOMATO WINTER BEAUTY.—Mr. PAGE, gr. at Dropmore, and contributor of our weekly Calendar on hardy fruit culture, has sent us some delicious fruits of this excellent Tomato for winter and early spring fruiting. The seeds were sown last December, and ripe fruits were gathered in the first week of April. The result has borne testimony to the quality of the variety, and to the skill of the cultivator.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR JUNE.

THURSDAY, JUNE 4—Linnean Society Meet.
FRIDAY, JUNE 5—Royal Botanic Society: Lecture.
TUESDAY, JUNE 9—Royal Horticultural Society's Committees Meet. Lecture on "Fruit Bottling."
FRIDAY, JUNE 12—Royal Botanic Society: Lecture.
SATURDAY, JUNE 13—Royal Botanic Society Meet.
THURSDAY, JUNE 18—Linnean Society Meet.
FRIDAY, JUNE 19—Royal Botanic Society: Lecture.
TUESDAY, JUNE 23—Royal Agricultural Society's Show in London (5 days). Royal Oxfordshire Horticultural Society's Commemoration Show.
WEDNESDAY, JUNE 24—Grand Yorkshire Gala and Horticultural Exhibition at York (3 days). Annual Dinner of Gardeners' Royal Benevolent Institution.
THURSDAY, JUNE 25—Royal Horticultural Society's Show at Holland House, Kensington (2 days). Jersey Rose Show. Brentwood Rose Show.
FRIDAY, JUNE 26—Royal Botanical Society, Lecture. Isle of Wight Rose Show at Carisbrook.
SATURDAY, JUNE 27—Windsor Rose Show.

SALES FOR THE WEEK.

WEDNESDAY, JUNE 3—
Palms, Plants, Geraniums, Seeds, and Fern-tree Stems, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Freehold Nurseries and choice Fruit Orchards, at Sandford, near Bristol, by Messrs Shiner & Winter.

THURSDAY, JUNE 4—
Clearance Sale of Nursery Stock, four Greenhouses, Piping, and Sundries, at Laburnum Villa, Oakleigh Road, Whetstone, by order of Trustees, by Protheroe & Morris, at 12.

FRIDAY, JUNE 5—
Imported and Established Orchids, in variety, at 67 & 68, Cheapside, by Protheroe & Morris, at 12.30.—Orchids, at The Freemason's Hall, George Street, Edinburgh, by Mr. John Cowan, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —58.8°.

ACTUAL TEMPERATURES:—
LONDON.—*May* 27 (6 P.M.): Max. 70°; Min. 49°.
May 28 (Noon): 65°; warm, thundery.
PROVINCES.—*May* 27 (6 P.M.): Max. 66°, Home Counties; Min. 47°, N.E. Scotland.

The Temple Show.

We confess we are a little tired of the conventional expression "fine show" which we hear at all exhibitions, but, on this occasion at least, the expression is amply justified. Of course, it makes no pretensions to emulate the stately magnificence or the imposing magnitude of the Ghent Show, but it certainly surpasses most, if not all, of its predecessors. By the elimination of a great quantity of what may not inappropriately be termed "rubbish," space has been found for a more refined and a more varied exhibition than usual. It is an exhibition in which, if there is no very striking novelty, there is excellent quality all round, good cultivation, and great variety. We can hardly tell all the changes introduced by Mr. WRIGHT, the superintendent, but the general effect was so obvious, that the congratulations offered to him were proportionately well merited.

There was one great improvement in the construction of the narrow tents that run parallel with the Thames Embankment. Previously they were connected to each other by still narrower "necks," which became so choked with visitors, that they were almost unable to pass one way or the other. This year the necks were not used, and instead of three tents being joined in the manner described, there was only one, of the same width throughout its length. It was a great improvement, but it would have been still better had there been two tents, and a means of exit provided between them, but this we believe the Benchers do not view with favour; although it would have prevented the atmosphere becoming so hot and impure as it did. In such weather as prevailed on Tuesday, and with such a throng, it took a very long time to pass along this tent, and, in doing so, many ladies felt a desire to obtain fresh air long before there was any possibility of them doing so. It would be much better, of course, if it were possible, to do away with this narrow tent altogether, and have a wider one in its place, but the trees unfortunately prevent this. It is always a weak point at the Temple Shows.

We must refer to our report in a special supplement for the details of this great exhibition; here we can only say that it was held under the usual conditions in the Temple Gardens in ideal weather. Messrs. SANDER & SONS showed several of the novelties that we illustrated at Ghent, and had, moreover, a very remarkable hybrid Nicotiana, with rose-coloured flowers, which at a distance might have been taken for a Calanthe. A fine group of Clianthus Dampieri, also shown at Ghent, was a feature in their collection here. Messrs. BRUCE showed a fine group of Sarracenias.

Mr. JOHN RUSSELL, of Richmond, had a fine bank of species and varieties of Alocasia; M. DRAPS DOM, of Brussels, showed a good group of Dracænas; and another foreign exhibitor, Mr. KOHLMANNSLEHNER, of Berlin, displayed a fine batch of a variety of Phyllocactus, which gained an Award of Merit. Mr. G. BORNEMAN, also from Germany, obtained an Award of Merit for a new Richardia, with sulphur-coloured spathes. Messrs. GAUNTLETT showed an interesting selection of cut flowers of Sikkim Rhododendrons, but they had unfortunately been injured in transit.

The collection of Liliaceæ from Messrs. WALLACE was one of the features of the Show. Messrs. VEITCH, as usual, were to the front, not only with their mixed groups, but also with a batch of their glowing Kalanchoe Felthamensis. Messrs. BACKHOUSE and many others showed beautiful groups of alpine and similar plants, veritable gems exquisitely arranged, but far too numerous for special mention. Messrs. G. JACKMAN & SONS' Clematis were noteworthy; Messrs. W. BALCHIN & SONS gave us a welcome reminder of the old days of New Holland plants; Messrs. H. CANNELL & SONS made a fine display of Cactuses, Cannas, and other objects, which have made the Swanley nurseries famous.

An excellent object-lesson in the arrangement of cut-flowers was an exhibit of Carnation blooms, from Mr. A. F. DUTTON, Bexley Heath. These lovely bouquets were composed of the varieties Mrs. Lawson, Madame Melba, and G. H. Crane.

Outside there were the usual collections of beautiful and interesting hardy trees and shrubs from Messrs. FISHER, SON & SIBRAY, Messrs. J. VEITCH & SONS, Messrs. T. CRIPPS, and others. But the most remarkable exhibit here was a noble plant of Puya lanuginosa, from the Tresco Gardens in the Scilly Islands. From a tuft of yucca-like foliage uprises a stately shaft, bearing above a mass of yellowish-green flowers—a truly noble object. This, and the Nicotiana before mentioned, were the most notable features of the Show.

Messrs. SUTTON & SONS, Messrs. J. CARTER & Co., and Messrs. BARR & SONS had separate pavilions of their own. A yellow-flowered Cineraria, in the midst of flowers of the ordinary colours, shown by Messrs. SUTTON, was very noteworthy.

Among other circumstances worthy of remark was the resuscitation of the award of the Lindley Medal. We have often wondered and expressed our regret that this award, founded in remembrance of one of the Society's most honoured officials, should remain unbestowed. It cannot have been that we have had no good cultivators since the days of THOMAS BAINES and JAMES ANDERSON—both only known by name, and to a limited number, of the present generation. The Medal was expressly founded in recognition of superior cultivation.

Some complaints have again reached us as to the inefficiency of the refreshment department, but these complaints should be addressed to headquarters.

The arrangements worked particularly smoothly, and hearty thanks for this are due to the Society's Officers, the Rev. W. WILKS, M.A., Mr. READER, and the Chiswick Superintendents, Mr. WRIGHT and Mr. HUMPHREYS.

NATIONAL HORTICULTURAL HALL.—We have received the sum of 5s. for the National Horticultural Hall, from Mr. A. D. BERNEY BARNBROOK MOFFAT, and have sent it to the proper quarter.

LINNEAN SOCIETY.—On the occasion of the evening meeting, to be held on Thursday, June 4, 1903, at 8 P.M., the following papers will be read: 1. "On the Anatomy and Development of Comys infelix," by Miss ALICE L. EMBLETON. 2. "Scottish Freshwater Plankton," by Messrs. W. & G. S. WEST, F.L.S., &c.

THE KEW HERBARIUM.—The new building is now completed, and will more than double the existing accommodation. In the construction of the new building, great care has been taken to render it fire-proof. The older building is defective in this particular, but it is intended at once to move the cabinets into the new building, and then to proceed to render the old roof and floors fire-proof also. A transition period of great activity, and, of necessity, some inconvenience is therefore in store for the staff and the visitors, but the extra space is greatly needed, and protection from fire is imperative. The old building is connected with the new by three corridors, one on each floor, each corridor being fifty-six feet long. One of these corridors is tenanted by Dr. STAPF, and is hence already

designated the Stapf corridor. Already some forty-two cabinets filled with grasses alone are arranged along the inside wall of this corridor, the windows along the front being convenient for the use of students. About two millions of specimens in all are here accumulated, and as they comprise many of the "type specimens" of Sir WILLIAM HOOKER the founder, of his son Sir JOSEPH HOOKER, of the late Mr. BENTHAM, and of very many more distinguished botanists and travellers, as well as the authentic specimens from which were prepared the Australian and Colonial Floras, and the invaluable *Genera Plantarum*, the inestimable value of the collections can in some measure be realised, even by "the man in the street." The library is in excellent order, and contains about 20,000 volumes exclusive of pamphlets. The collection of plates and illustrations of plants numbers about 100,000, arranged alphabetically in their several natural orders. The library and herbarium are in the charge of Mr. HEMSLEY, with several assistants, and under the general direction of Sir WILLIAM THISELTON DYER.

DAMAGE BY HAIL IN GLOUCESTERSHIRE.—It may be interesting to your readers to know that the hailstorm which occurred on the 5th inst. did considerable damage to glass in the neighbourhood of Tewkesbury, Gloucestershire. Some of the panes of glass were smashed to pieces, while others were starred by the hail, and consequently had to be removed. The Churchdown Fruit and Flower Company, of Cheltenham, who have a branch nursery at Bredon, near Tewkesbury, had several hundred panes of glass broken; but fortunately they were insured at 6*d.* per square foot, so that the compensation paid by the Nurserymen and Market Gardeners' Hailstorm Insurance Corporation, of 41 and 42, King King Street, Covent Garden, was sufficient to compensate them, not only for the damage to glass, but for the damage to the contents of the houses also. *Alex. James Monro.*

METHVEN'S EDINBURGH MARKET CABBAGE.—We have received from Messrs. METHVEN & SONS, 15, Princes Street, Edinburgh, a specimen of an excellent variety of Cabbage, under the above name. It is, for this early part of the summer, of large size and great solidity, and is nearly "all heart." The length of the stalk is about six inches. The variety was awarded a Certificate of Merit by the Royal Caledonian Horticultural Society, at the show held in Edinburgh last week.

FLOWERING OF AGAVE AMERICANA.—A specimen of this plant, which is believed to be eighty years old, is now in bloom in Koog-van-de-Zaan, a village of North Holland. The flower stem is 6½ feet high, with a diameter of about 2½ inches, and the weight of the plant, tub, and earth included, is 200 lbs. Mr. M. K. HONIG, the owner of the plant, has only awarded it the usual treatment. *M. Buysman, Middelburg, Holland.*

NEW INTERMEDIATE IRISES.—We have received from Mr. J. CAPARNE, of Guernsey, some Irises remarkably fine in themselves, and especially valuable as coming at a time of year when other varieties fail us. The colours are varied and beautiful, and the sorts are not merely useful as growing plants, but are excellent as cut flowers, remaining fresh for a long time in water; while the buds open one after the other when kept in a warm light place.

TEMPERATURE RECORDERS.—Messrs. P. HENSEL & Co., of 12, Long Acre, E.C., have brought out an electrical apparatus known as the "Minimum-temperature Recorder," which will automatically signal any decrease of temperature to a predetermined degree. The gardener need no longer rise on a winter night to consult his thermometer, for a temperature controller set outside his window, and adjusted to the desired degree of alarm on the thermometer scale, will sound the signal when the temperature around has fallen to the assigned degree. The warming of hot and of greenhouses can thus be controlled from any distance. In fixing the recorder out-of-doors, it should be sheltered from rain. The thermometer scale includes all degrees from 90° to 0° Fahr. A similar apparatus has been contrived to signal any increase of temperature from 30° to 120° Fahr. Another recorder will signal both decrease and increase of temperature as may be required.

CHRYSANTHEMUM SHOW AT LILLE.—The Chrysanthemum Society, the Société Centrale d'Horticulture, and the Société Régionale du Nord, have united in arranging an International Exhibition of Chrysanthemums and other ornamental plants, to be held in Lille from November 6 to 11, inclusive. Professional and amateur growers are invited to take part in the exhibition, and to signify their intentions of doing so before October 15 to the Secretary of the Organising Committee, 12, Grande Place, Lille, giving full particulars concerning their proposed exhibits. Questions dealing with the growth and cultivation of Chrysanthemums will be discussed at the Conference, while the exhibition itself will include specimens of pot plants, cut flowers, decorative arrangements, and ornamental foliage plants and Palms.

FROM A CORNISH GARDEN.—Mr. JOHN RASHLEIGH obligingly sends us flowers of Eucalyptus coccifera, taken from a tree some 60 feet in height, and now covered with masses of feathery white flowers, arranged on stalked umbels; the stalked leaves are obliquely lanceolate. The tree must indeed be a glorious object. It was described and figured in our columns June 30, 1888, p. 801. From the same garden came flowers of Drimys Winteri, a very interesting evergreen, with shortly-stalked, lanceolate leaves, and long-stalked compound umbels, with scaly boat-shaped bracts surrounding the base of the young leaf shoot. Each flower is pale yellowish-white, about 1¼ inch across, with a calyx of only two boat-shaped sepals. Petals numerous, twice the length of the sepals, narrow oblong-lanceolate, recurved at the tips; stamens numerous, in two rows, shorter than the petals, with thick filaments, and extrorse anthers, surrounding the base of the ovaries. Carpels numerous, free, green, oblong, incurved at the top, and bearing on the inner surface an oblong stigma. Botanists will recognise in this a most interesting plant, and we can assure those who do not care for points of structure, that the grace and elegance of the flowers will prove sufficiently fascinating. The tree is a close ally of the Magnolias, and comes from the Straits of Magellan. Captain WINTER, in 1579, brought the bark to Europe, where it was at one time used as an aromatic tonic, but it has now fallen into disuse.

RE-ISSUE OF PARKINSON'S "PARADISUS."—Flooded as we are with popular books on gardening, wherein the ostensible subjects of interest are treated alternately with cookery, hygiene, with amateurish want of information of all sorts, we hail with pleasure the forthcoming reappearance of an old favourite. The famous "*Paradisus Terrestris*, or a Garden of all sorts of Pleasant Flowers which our English Ayre will permitt to be Noursed up," is to be reprinted by Messrs. METHUEN from the folio edit. of 1629. The charming illustrations will also be reproduced. How far JOHN PARKINSON'S plants and their culture are nowadays superseded, is of little consequence; we have a book valuable for the side-lights thrown upon old-time horticulture, for the care with which it was put together, and for the delightful style and the earnestness with which it is written. Such a work is very different to modern frothy paste and scissors productions, and plant-lovers to whom the *Paradisus* is unknown should make a point of reading what they are bound to enjoy. It may be remembered that the late Mrs. EWING founded her pleasant tale, *Mary's Meadow*, largely upon PARKINSON'S book, which much fascinated her. It was a happy thought of Messrs. METHUEN to render this old favourite available to present-day gardeners, more especially as the taste for hardy plants is now in the ascendant. For scientific purposes, the reissue will be valuable, as showing the progress of evolution in many flowers, and the relatively unchanged condition of others. We trust the publishers will take care to add a supplement containing the modern names of the plants depicted.

COFFEE.—According to M. BERTRAND, of the Pasteur Institute, who analysed nine species of Coffee, it would appear that Coffea Humblotiana and C. Mauritiana contained no caffeine, the substance to which Coffee owes its stimulating properties. In Arabian Coffee (C. arabica), obtained from various sources, the caffeine present varied from 0·83 to 1·60 per cent. Liberian Coffee (C. liberica) yielded between 1·06 and 1·45 per cent. The new African Coffee (C. stenophylla) appears very rich in caffeine, 1·52 and 1·70 per cent. being the results of two analyses recorded. Coffea canephora gave the highest caffeine content, 1·97 per cent.

MADAME MAURICE LEVÈQUE DE VILMORIN.—The sympathies of the numerous friends of M. MAURICE DE VILMORIN in this country will be extended to him in the sad loss occasioned by the death of Madame DE VILMORIN at Paris, on May 6.

AVERY HILL PARK.—This splendid new addition to the "open spaces" of suburban London, close to Woolwich, was thrown open to the public on Saturday last, and whilst forming a fine health resort, or lung, also opens up a field for the operations of the speculative builder. Avery Hill was acquired by the London County Council in October last. The estate covers 84 acres, on the main road between Eltham and the county boundary, and a mansion is included in the possession, having a conservatory and a winter garden attached. The new "lung" has been laid out as a park. The price for the land was £298 per acre.

PRESENTATION TO MR. T. LUNT.—Mr. THOMAS LUNT, who recently completed fifty years' service as head gardener to Sir M. R. SHAW STEWART, Bart., Ardgowan, Renfrewshire, was recently met by a number of friends in the Royal British Hotel, Edinburgh, and presented with a purse of sovereigns. The chair was taken by Mr. DAVID MITCHELL, in the absence of Mr. MACHRAY, Kelly, and the presentation was made by Mr. J. FRASER SMITH, head gardener to the Countess of SEAFIELD, at Cullen House, Banffshire, one of Mr. LUNT'S earlier assistants. In the course of his remarks, Mr. SMITH took occasion to refer to the large number of young gardeners that Mr. LUNT had passed through his hands during the past half-century, and the benefits which he had conferred on horticulture at large, both by precept and example. Many of the young men who received their first training at Ardgowan now occupy good positions in the horticultural world.

SHRUBBY ECHIUMS.—In addition to what was published in our last issue in regard to these plants, Mr. CHAS. P. RAFFILL writes:—E. fastuosum closely resembles E. callithyrsum, and, like it, forms a spreading bush, from 3 to 6 feet in height, and 6 to 8 feet in diameter. The flowers are of an intense blue tint on first opening, passing with age to red. The filaments are about twice the length of the corolla, and almost white. The leaves are of a pale green tint, ovate-

lanceolate, and densely covered with white tomentose hairs. The last two species mentioned in my note would probably live outside in the south-western counties of England, if given a sheltered position, and some slight protection during frosty weather.

THE TRADERS IN POISONOUS COMPOUNDS FOR TRADE PURPOSES PROTECTION SOCIETY.—A letter, of which the following is a copy, appears in *The Chemist and Druggist Journal*, for the 16th inst.:—

"Sir,—An experience of forty-four years in the drug trade has never given me the necessity to think chemists were not able to cope with the poisonous compounds used in horticulture, wheat-dressing, &c. Neither have I ever known a town or village in which, as a rule, there are not four chemists to one seedsman. I therefore wonder on what point Mr. Dobbs rests his plea to be allowed with others, outside the drug trade, to get the sale of poisons placed in other trade hands. Farmers go to the chemist for horse physic, rubbing-oils, and medicine for domestic use, and naturally order their wheat-dressing or sheep-dip. Why then, all this fuss? surely our legislators cannot have been properly informed upon the subject, otherwise I am sure no one sitting on the commission would have entertained a desire to alter the Pharmacy Acts.
Plumstead, S.E., May 7." JOHN S. SYKES.

And the following is a copy of a letter I have received from a "Farmer in Wales":—

"Mr. Dobbs, Sir,—In last week's *Chemist and Druggist*, Mr. Sykes' letter is misleading. I live in a country district, the nearest chemist's shop to me, where I can obtain poisonous sheep-dip, is 12 miles in any direction, and I have to use non-poisonous dip, when I would prefer poisonous substances. Again, I can prove to you, that a chemist charged me for six 20-grains Nux Vom. powders, *7s. 6d.*, when it costs from 1*0d.* to 1*s. 3d.* per lb. I am only pointing you these facts, to contradict Mr. Sykes's experience in agricultural trade. Sheep-dip is used very largely in our district, and yet in the hands of chemists, when really a grocer or ironmonger near home could supply me equally as well. I hope we shall have more freedom in business matters. *Farmer in Wales, May 19, 1903.*"

In the interest of the agriculturist and horticulturist, it is advisable they should take a greater interest in the movement now on foot to get the Pharmacy Acts amended, making it lawful for traders to have the right to sell poisonous compounds in sealed packages under proper restrictions according to regulations to be laid down by the Privy Council, as well as chemists, and I shall be obliged if any of your readers will kindly inform me of any experiences they may have had similar to that of the "Farmer in Wales," so that I may use it to their interest. You will note that not only has the "Farmer in Wales" experienced a difficulty in obtaining poisonous sheep-dips, but he makes an allegation against the chemist of charging him very extravagant prices. *Thos. G. Dobbs, Solicitor to the Society.*

EXHIBITION SCHEDULES:—

The Eccles, Pendleton, and District Chrysanthemum Society will hold its seventeenth annual exhibition on November 13 and 14, in the Town Hall, Eccles. The secretary is Mr. J. H. Bryan, 134, New Lane, Peel Green. In the little pamphlet containing the schedule of prizes, there is the following preamble: "The special object of this society's show is to promote and encourage the growth and cultivation of the Chrysanthemum; to secure, as far as practicable, fair and open competition; and to discountenance, by every available means, any attempt at unfair or fraudulent exhibiting."

The Rugby and District Chrysanthemum, Fruit, and Floricultural Society has issued a schedule of prizes to be offered in fifty-three classes on November 11 and 12, in the Town Hall, Rugby. The secretary is Mr. W. Bryant, 8, Barby Road, Rugby.

The Highgate and District Chrysanthemum Society, having obtained the use of the Alexandra Palace for its exhibitions, is becoming quite an important body, and its exhibitions are much better than they were previously. In the north of London there are many good cultivators, and several gentlemen belonging to the Committee of the National Chrysanthemum Society lend their assistance to the local society also. The next show will be held in the Alexandra Palace on November 4, 5, 6, and there will be prizes offered in seventy-five classes. The Secretary is Mr. W. E. Boyce, 20, Holmesdale Road, Highgate, London, N.

The Macclesfield and District Chrysanthemum Society's show will be held on November 13 and 14. The Secretary is Mr. W. Oldham, 153, Great King Street, Macclesfield.

The Stockport and District Chrysanthemum, Flower and Fruit Show will be held on November 13 and 14. The Secretary is Mr. W. Ralphs, St. Peter's Square, Stockport.

ANDROSACE LANUGINOSA.

[Supplementary Illustration.]

All of the Androsaces are charming plants when they can be induced to establish themselves, a task often of difficult and almost impossible achievement, and their flowers are pretty; but for beauty the subject of the Supplementary Illustration carries the palm. Its rosy-lilac, yellow-eyed blossoms are exquisitely dainty, and this Androsace is rendered additionally valuable on account of its lengthened blossoming period. This year during the first week in May I saw A. lanuginosa in flower, and in mid-November it may often still be seen carrying a dozen or more flower-heads. Between these two dates it is never entirely flowerless, but generally reaches its zenith of perfection in July. It is surprising what differences of opinion exist regarding the culture of the subject of this note. A certain writer speaks of it as "one of the easiest-grown of all alpine plants," though, by the way, it is a native, not of the Alps, but of the Himalayas. Another writer, particularly well versed in the culture of alpines and such-like subjects, states, on the other hand, that he finds "no plant is more difficult to cultivate." Between these two extremes many instances of total or partial success or failure are recorded. Those who experience no difficulty in growing the plant fail to understand how others are not as successful; while the unfortunates who are unable to prevail upon it to live, wonder at the easily-gained triumphs of their more favoured brethren. Even where Androsace lanuginosa has flourished for years, it sometimes dies out. The accompanying illustration is from a photograph taken in the rock-garden at Chaddlewood, S. Devon, of which garden several pictorial representations have appeared in these pages. For many seasons this Androsace grew at Chaddlewood with astonishing vigour, and formed large masses. Then it suddenly died, and for some years, though cuttings have been planted annually in similar compost to that in which the old plants luxuriated, refused to live. This year, however, the rooted cuttings, up to the present time, appear healthy, and it is hoped that the plant will re-establish itself in the garden. Androsace lanuginosa is seen at its best when its growths are enabled to hang down over a portion of perpendicular rock-face. The silvery, silky foliage often suffers considerably from damp in the winter, but is less subject to its effects when the growths are pendent, and backed by stone. Where it is grown on a flat surface, this should be covered with small flat stones in order to prevent contact with the soil. Fibrous loam and peat, with which a liberal allowance of grit and rock-chippings is mixed, proves in most cases a satisfactory compost. Overdue moisture during the winter can to a certain extent be obviated by fixing a large pane of glass horizontally a few inches above the plant. Cuttings may be readily made from the tips of the prostrate stems which are a foot or so in length, and strike readily in pure sand if kept close for a time. When these rooted cuttings are planted in the spring a few inches apart, they soon form an effective mass. Where this Androsace grows vigorously, it is often left untouched by the knife, but many hold that if the old stems are cut back they make stronger growth and bear larger heads of bloom. Varieties of A. lanuginosa are A. l. Leichtlini, with larger and rather more brightly-coloured flowers, slightly more straggling in growth; and A. l. oculata, which bears white, pink-eyed blossoms. *S. W. F.*

THE KEW GUILD.

The annual meeting and dinner of past and present Kewites has become quite an established institution, and being held on the eve of the great Temple Show, affords an opportunity for a large number of Kew men to meet together in social intercourse. The annual meeting on Monday last at the Holborn Restaurant, when the President, Mr. W. Watson, presided, was very brief indeed, the business being purely formal.

The alterations in the executive rendered necessary last year by the retirement of Mr. Nicholson from the office of President, have proved to be satisfactory. Mr. Winn, as secretary, has kept the affairs of the Guild going smoothly; and the new editor, Mr. W. J. Bean, will maintain the popular *Journal* as interesting as formerly.

The committee regretted the death of Mr. Hermann Wendland, Director of the Botanic Garden, Hanover; Mr. Robert MacKellar, Abney Hall Gardens, Cheadle; and Mr. Jas. Morrison, Archerfield Gardens, East Lothian. There are now about 700 members of the Guild, of whom 157 are life members. During last year there were 450 copies of the Journal distributed.

As many members of the guild who receive the Journal forget, apparently, to send along their small yearly donation, the executive would welcome them as life members, for by thus compounding the amount future trouble in this respect would be prevented. The four members of the guild committee who retired in accordance with Rule III. are Messrs. H. F. MacMillan (Ceylon), Krumbiegel, Page, and MacGregor. The vacancies were made good by the appointment of Professor Pearson, South African College, Cape Town; Dr. D. Morris, Imperial Commissioner of Agriculture for the West Indies; and Messrs. MacGregor and Murray, the two latter representing the sub-foremen and gardeners respectively.

The Dinner commenced at 7.30, and was attended by about 145 members of the Guild. The Chairman was Dr. D. H. Scott, F.R.S., Honorary Keeper of the Jodrell Laboratory. He was supported by the Director of Kew, Sir W. T. Thiselton Dyer, K.C.M.G., Sir Thos. Hy. Elliott, Secretary to the Board of Agriculture, and others. Many members had come a long distance to be present at the function, like Mr. F. W. Burbidge, Trinity College Botanical Gardens, Dublin; Dr. Henry, and Mr. Wilke, Curator of the Botanical Gardens at Rotterdam.

Dr. Scott, in proposing the toast of "The Kew Guild," made a thoughtful and very interesting speech, which included information respecting the number and distribution of Kew men, and of the work of a few prominent workers at home and in various parts of the Empire. He remarked that by the recent appointment of Mr. Sillitoe to the station at Khartoum, a South African chain of Kew men had been completed to the latter place from Cape Town, and this before the Cape to Cairo Railway is accomplished.

Sir William Dyer, in response, afforded further information of the work done by Kew men, and paid the highest appreciation to the manner in which they are upholding the traditions of Kew. In conclusion, he said that lately the Commis-

sioner for the Transvaal required an expert man to study the question of grasses for grazing in that great area of agricultural land, and being not yet in touch with the Colonial system here, or with Kew, he applied to the School of Horticulture at Washington, U.S.A., an establishment which is second to none in the world. What did the Washington Authorities do? asked Sir William; "they sent him a Kew boy, Mr. J. Burtt Davy." Sir William Dyer also referred to the transference of the management of Kew, from the office of the Board of Works to that of the Board of Agriculture, and expressed his hope and belief that the change would prove to be for the benefit of Kew.

Sir Thos. Elliott, responding subsequently to the toast of "Guests and distant Visitors," made a very happy speech, that met with the unanimous appreciation of those present. He said he felt that he was more than a guest at that meeting. He was a friend, and since the Board of Agriculture had been charged with the care of Kew, they were relations. The Board felt, said Sir Thomas, in much the same position as a young man when acting as guardian for a very beautiful girl. From the highest to the lowest official at Whitehall, it would be their endeavour to see to it that Kew shall not suffer. He could promise them that Kew would receive sympathetic treatment, and that the Board would not unnecessarily interfere in its management. Kew had its historical traditions, Royal associations, and succession of eminent Directors, and was doing a great work for the Empire. It should be the pride of all not only to maintain her in her present position, but to develop her work still further. It was in that spirit that the Board of Agriculture would approach its new responsibilities, and from what he had observed at that meeting he was quite sure that it was in the same spirit Kew would welcome the Board.

A vote of thanks to the Chairman was proposed by Mr. W. Watson, and was accompanied by musical honours. Mr. Hillier and Mr. Briscoe favoured the company with several songs during the evening that were much enjoyed.

ECHIUMS.

Echium fastuosum, of which a supplementary plate was given in your last issue, is a garden example of one of the many varieties of the rock Echium of the Madeira littoral. There can hardly be a more striking object than this plant in early March in full beauty of bright pale blue blossom. The bush measures about 18 feet in circumference, and the flower-heads of crowded cymes are from 6 inches to 1 foot long. The filaments are white, fading into pink; the leaves pale glaucous green. The flowers are highly attractive to bees and butterflies, gathering an abundant supply of nectar, and dark blue pollen. The plant is perennial in habit, rises 5 or 6 feet from the ground, assuming a graceful pyramidal form, generally perishing after a few years' growth, leaving seedlings in abundance.

A still handsomer species of the same genus, E. candicans, grows in grand masses 2000 feet and more above the sea-level on moist banks. The flowers are of a very deep blue colour, with purple filaments; flower-heads often 20 to 30 inches in length. This plant is in every way larger and more robust than E. fastuosum, blossoming in the early summer months among sturdy bushes of Argyranthemum pinnatifidum, and the mauve-coloured wild Cineraria, C. aurita, of Madeira.

The Teneriffe, white blossoming Echium simplex, with a simple unbranched stem 8 to 12 feet long, is establishing itself along the sea cliffs, and is cultivated in gardens. This species matures in two years, and dies after flowering. The large-flowered herbaceous Echium violaceum, also found in S. of Europe, occurs abundantly in the lowlands of Madeira, producing masses of deep purple-blue flowers in March and April. *M. Grabham, Madeira.*

Fig. 132.—Wistaria, pale lavender-coloured variety: from Messrs. Boehmer and Co., Yokohama.

WISTARIAS.

Japan has a succession of spring flowers, all lovely, but none more beautiful than the Wistaria. The celebrated Kameido Temple in Tokyo, where these blossoms can be seen in fullest perfection, is one of the favourite gathering places of the Japanese, and one of the sights for travellers who visit Japan in spring. The variety grown there is called in Japanese "Noda Fuji," the inflorescence of which measures from 1½ to 2 feet in length, while the colour is the purplish-blue of all Wistarias.

In the enclosed photograghs (fig. 132) we show, first, a rare variety of the "Noda Wistaria," a pale lavender-coloured flower, a natural cross, we think, between the purple and white varieties. A second photograph (not reproduced) shows a few sprays of the double-flowering variety. Each single blossom of this Wistaria looks very much like a double Violet, and has much the same scent. A third picture (fig. 133) shows a group in our nursery of the white and purple Wistarias, both Noda varieties, and also a large double Wistaria. The flower-spikes of our pot-grown plants reach a length of 15 in. *L. Boehmer.*

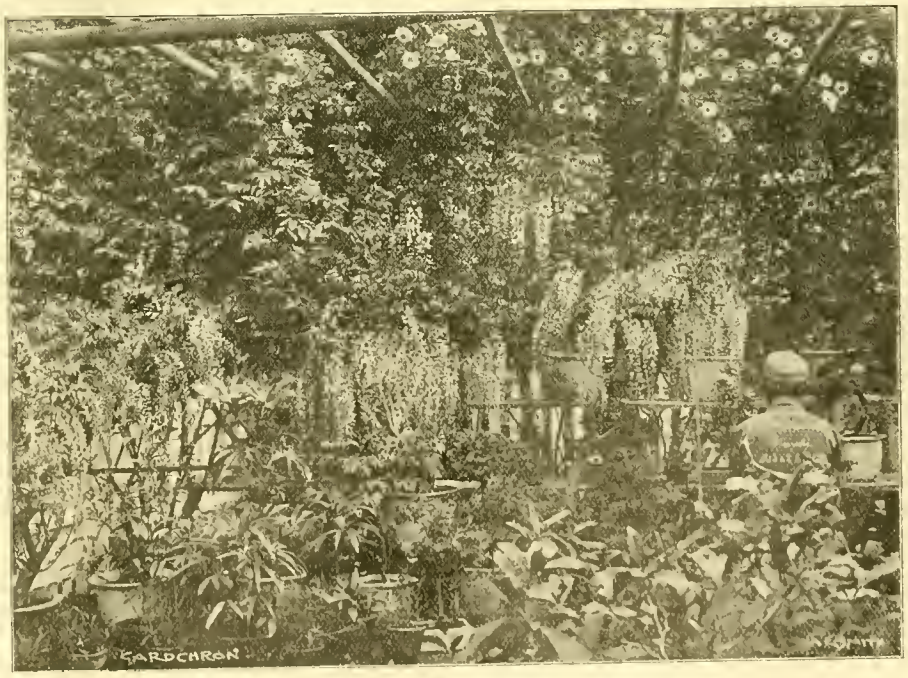

Fig. 133.—Group of Wistarias in the Nurseries of L. Boehmer and Co., Yokohama.

HOME CORRESPONDENCE.

EARLY CRAWFORD PEAR.—Mr. Williamson's remarks in your issue of May 16, p. 318, on the Early Crawford Pear, seem to call for a few words on this variety, which is rarely grown in gardens south of the Tweed. At Altyre, Forres, there exists a fine tree of this variety, which used to fruit freely annually; and though severe weather is often experienced in that district in the month of May, this particular tree never failed to carry a crop of fruit. The fruit ripens in August, therefore at a time when a good Pear is more than usually acceptable. I intend giving this variety a trial at Sopley. *J. Murray, Sopley, Christchurch.*

A CURIOUS CUCUMBER.—I hope to have at the Drill Hall on Tuesday, for the Scientific Committee, the oddest Cucumber I have yet seen. There are growing in a span-house at Chesfield, the residence of H. Trengrouse, Esq., Hampton Wick, several plants of Improved Telegraph Cucumber. They were from a sowing made early in February, and are planted out in soil beds on each side of the house. All the plants, with one exception, are of normal form, and are fruiting as well as growing freely and healthy. The exception is at one end of the house, has normal growth, and leafage quite strong, but its inflorescence assumes a very quaint form. A short stem projects from a leaf axil, and from this radiates off several small string-like stems, at the extremity of each being a small cluster of abnormal flowers. In some cases the clusters are quite large. Relatively, very few fruits result. These are not at all like those of Telegraph, but are rather of the size and appearance of a smooth ridge Cucumber. At the extremity of each of the fruits there breaks out a cluster of small leaves, presenting one of the oddest appearances on any Cucumber I have ever seen. Fruits that have been eaten are reported upon as pleasant to the taste. There is nothing whatever in the culture to produce this remarkable diversion from normal growth, but it does present an example of dimorphism that well merits attention. *A. Dean, May* 18. [This variation was illustrated in our columns on Sept. 21, 1901, p. 229, and has since occurred repeatedly. ED.]

RAISING PRIMROSES BY SEED AND DIVISION.—In regard to the discussion going on in these columns by your correspondents "Old Kewite" and Mr. Tallack, can it be said that we know any more about the subject than was known half a century ago? Perhaps we may say that, in regard to the so-called "bunch Primroses," which are seedling sports from our common native species, Primula vulgaris, possessed of great vigour, and having flowers of various colours, that the once almost universally condemned method of propagation by division is mostly practised. One must judge by results, although the same methods do not hold good in all parts of the country or in all kinds of soil, and that which is found suitable, and even demanded in the case of your correspondent Mr. Tallack, living in Derbyshire, on a cold soil and in a comparatively cool climate, will not afford satisfactory results in the thirsty soils of Haselmere, in Surrey. But this is not to my mind quite convincing, and is rather a comparison between things that are in many points dissimilar, and never likely to lead to a satisfactory conclusion. Will not some Derbyshire gardener residing on a light sandy soil, either high or low level, give us the benefit of his experience with these plants? We could then, to a greater extent than hitherto, attribute success or failure to differences of soil, climate, and altitude, apart from particular methods of cultivation. Both contestants are good gardeners, and both have to do with soils in which Primula vulgaris grows well, but the one cannot obtain good results when he puts in practice the methods of the other. It may be stated as matter of common knowledge that plants of the Primula family dwindle when often transplanted, and that was a reason why at one time they were found unsuitable for general planting in the spring. It was not possible to employ the same plants year after year, as one could the Daisy, Alyssum saxatile, Iberis supervirens, and others, whose names will readily occur to the reader. The beautiful double-flowered form of Primroses, and the pretty many coloured Polyanthuses, could not be employed for the reason that they did not bear removal annually. *M.*

—— After what an "Old Kewite" has said about the culture of bunch Primroses, viz., that the ground is "trenched," working in "large quantities of manure," and top-dressing the soil with leaf-soil after it is planted, one can hardly contend that the culture is not high, and I had no wish so to do; but what I cannot understand is that an "Old Kewite" cannot get seedling plants "fit to look at" within twelve months of the time of sowing, and at the same time gets results with divided plants that would turn a gardener in this part green with envy. If these results were general, there would never be any need for seed-sowing, and a certain amount of trouble would be saved. In the meanwhile, many of us will have to go on sowing, and be thankful for the results obtained. *J. C. Tallack.*

—— I would like "Old Kewite" to see our two large plots of these plants, which are one year old, in order to decide whether two years are needed to secure plants fit to look at. They have been the admiration of all who have seen them, and are truly very bright and beautiful flowers, and the plants of good size. The seeds were sown in boxes on April 10 last year, the young plants being afterwards pricked out into shallow pits recently occupied by winter flowering Violets, a good proportion of leaf-soil having been added to the compost. After getting a good start, the lights are taken off altogether, the plants remaining in the pits till planting-out time in the autumn, when the summer plants are off, by which time they lift with large balls of leaf-soil attached, in which they revel. I may mention the variety chiefly grown here is Carter's Royal Parks. With us the two-year-olds make plants 18 inches in diameter if undisturbed from planting out the first year, and nothing could be better where quantities of cut flowers are called for. *F. W. C., Poles, Ware, Herts.*

CYTISUS SCOPARIUS VAR. ANDREANA.—The Marchesa Marianna Paulucci of Florence, well-known in the botanical world, has asked me to communicate the following to you, and would be glad to know if any of your readers have had a like experience. The beautiful Genista known as Andreana, which was found by chance growing among common Broom by M. E. André, has, they say, never been raised from seed. In the garden of the Marchesa in Via Pinti is a plant grafted from one bought by her in Paris in 1888 which is a magnificent sight, some 9 feet high, and covered with brilliant golden flowers, with the calyx of a rich velvety red-brown, which colour is repeated on part of the petals. In 1897 a number of seedlings came up under the plant, and were potted. This spring they have bloomed, and one is a true Genista Andreana, thus proving that it does occasionally come true from seed. *Janet Ross, Florence.* [We believe the variety frequently, if not generally, comes true from seed. At Kew, as we were lately informed, it certainly does. ED.]

WILLOWS.—Having resided for a good many years in a Willow district, I read with more than usual interest Mr. Brotherston's notes, p. 348. In this parish, Kirkby Wharfe, there are nearly 100 acres of land under Willow culture. It is all low-lying land, adjacent to the river Wharfe, hence subject to flooding periodically when the river is full of water from Upper Wharfdale. The Willows are replanted and cut periodically, thus employing a good deal of labour. The Willows are cut in April generally, and what with the necessary peeling and boiling to get the brown colour on them, and making up into baskets, hampers, and carboys, find further employment for workmen of a more skilled character. The carboys mentioned are made of strong, unpeeled Willows, and are receptacles for holding the large glass bottles used in conveying the various chemicals in use in manufacturing districts. However, I am wandering from my point. What I wished to say was, Mr. Brotherston in his pithy notes on the folk-lore and uses of Willows has omitted an important one—I mean the manufacture of cricket-bats. As a native of the premier cricket county, I felt this must not pass by unnoticed. Some few years ago there was a fall of big, sound Willow-trees on this estate. They were soon bought up by a local timber merchant for the purpose named. *H. J. C., Grimston, Tadcaster.*

SOUVENIR DE LA MALMAISON CARNATIONS.—Carnation growers will do well to note Mr. Stephen Castle's remarks under the heading, "Market Gardening." As one interested in Carnations, I should be glad to know how many blooms these plants in 10 and 12-inch pots were carrying. My experience of Malmaisons, presuming they are grown from layers (which is the safest method), and flowered in 24's the first year, is that they very seldom throw more than eight to twelve flowering shoots for the second year, and must be well grown, too. As regards early bloom it is well known with growers two and three-year-old plants will give much earlier bloom and better in colour. Malmaisons are not generally a market-grower's plant for cut bloom where £ s. d. is the object. It would be interesting to know if S. C. has succeeded in this line for market. *Geo. T. Briggs, Bottesford Vineries.*

PHLOX STEMS SPLITTING.—At p. 320 of the *Gardeners' Chronicle*, reference is made to this malady, which it would appear refers only to the shrubby kinds, P. suffruticosa. In my experience the splitting of the stems is rare in these plants, which I attribute to the more equal and continuous elaboration of the sap by reason of the nearly evergreen character of the plants. In the group known as herbaceous, i.e., P. decussata, &c., stem splitting and gouty excrescences are of more frequent occurrence, and it is by no means to be attributable in all cases to a too rich soil. For example, I have some big clumps six years planted in deep soil that have had no manure at all since they were planted, still I get many split stems in some years. The splitting will occur after a spell of mild weather, or an excessive rainfall, whilst by reason of great cold above ground the upward growth is not at all in proportion to the root action below. The result is bursting of the tissues of the stems. These ruptures of the rind invariably take place in April or May, when a foot or more of growth has been made. Usually, the start is made in fair weather, and it will be noted that the rupture is not at ground level, but at 9 inches or 12 inches high, and in my opinion is due to a good start being ruthlessly held in check by reason of uncongenial weather conditions. *E. Jenkins, Hampton Hill.*

CAMPANULA BARRELLIERI, AND OTHER SEEDLINGS.—Mr. R. Dean enquires at p. 316, "Is it not unusual for these plants to produce seeds?" and I answer, Yes, very unusual! Doubtless the bees did the business in their usually thorough manner; and when these insects become interested in a plant, seeds are generally plentiful. For five years in succession I attempted to cross-fertilise C. fragilis, C. isophylla, and C. i. alba with other species, the two former with C. Hendersoni, the latter with the white C. pyramidalis. I got one or two seedlings after many trials with C. isophylla alba, but the first-named were always failures, for not a seedling ever appeared. Like Mr. Dean, I watched with interest the flowering of my seedlings from so wide a cross, but to my surprise all my seedlings were blue-flowered, and I mentioned at the time the circumstance to Dr. Masters. Had I had any other dwarf Campanulas, I should have suspected something akin to "An enemy hath done this;" but those named were all I had, and growers of hardy alpines are not plentiful in my neighbourhood. My Campanula hybrida Profusion was the best of these blue-flowered ones, and the Floral Committee, in giving it an Award of Merit, quickly upset my theory of its parentage, giving as one of them a plant I did not possess, and of whose existence within a mile I was not aware of. These seedlings are not only interesting, but very surprising at times. *E. Jenkins.*

FRENCH BEANS AND MILLIPEDES.—I send herewith one of a row of French Beans with the millipedes which are devouring it. The millipede is, as I am informed by Mr. R. J. Pocock, our chief authority on the Myriapoda, Blaniculus guttulatus. Mr. Pocock says that "it feeds on soft decaying vegetable tissues, or juicy fruits

like Strawberries and Bananas," and he thinks "would be quite capable of gnawing growing roots." The seeds were sown on April 24, and the rows are ruined. The question is, whether the millipedes or the wet weather are responsible. My own opinion is that it is the latter, and that the millipedes are merely scavengers removing decaying matter. A microscopic examination of the head of the animal shows that the jaws are very feeble, and I doubt their power to attack the hard surface of a healthy Bean. *Alfred O. Walker.* [The cold wet weather is the more likely cause. Millipedes feed on decaying vegetable-matter. Ed.]

FORTUNE'S DOUBLE-FLOWERED YELLOW ROSE.—Most readers of the issue of May 16 ought to read and study Mr. Fyfe's remarks on the above Rose, which undoubtedly is a variety very little grown inside, considering it is one of the most luxuriant and free-flowering climbing Roses we have for covering the roof of large houses, and as it is mildew-proof much may be said in its favour. Perhaps Mr. Dewar, who does not flower it successfully, will state the position of the house in which he grows the plant, whether it is partly shaded or not, for I believe that unripened wood would cause failure to flower. Judging by the manner it flowers here, it seems almost impossible not to flower it. We cut on an average yearly about five thousand blooms off two plants, which are planted in an inside border, and cover the roofs of two span-roofed houses running east and west. The houses are rather lofty, and get sunshine all day long. The system of pruning is similar to that of Mr. Fyfe, only the plants are trained somewhat differently. It is impossible to paint or explain the beauty of this plant when seen in full flower, and it must be seen to be appreciated. To add to the effect here, I may say first of all, the two houses are filled with Azaleas throughout the winter months, which we clear out, and then fit up stages, and fill with hybrid Roses in pots, which have been started in pits some time previously, and are just unfolding their buds. The sight is grand, and not easily forgotten. Some two or three years ago I put a query in a gardening periodical respecting a tendency this Rose has of shedding many of its leaves when the buds are opening; but the subject was tardily taken up, and I cannot yet say whether it is natural or not for the leaves to drop. Perhaps Mr. Fyfe, or any other gardener who cultivates the variety, will throw some light on this question. *P. Isherwood, Crichel House Gdns., Wimborne.*

SOCIETIES.

ROYAL HORTICULTURAL: THE TEMPLE SHOW.

(*Continued from p. iv. of Supplement.*)

CUT FLOWERS.

Roses.—On entering the long tent from the east end, two very fine collections of cut Roses found a place on the left hand.

Messrs. Frank Cant & Co., nurserymen, Colchester, had most sections represented; a background of Rambler and other Roses being fronted by vases and boxes of cut blooms. Of new varieties there were Tea Madame Jean Dupuy, delicate apricot, tinted with rose; Souvenir de Pierre Notting; Comtesse, Reine de Savoy, creamy-pink, flushed with pale rose; Lady Roberts; H.T. Prince de Bulgarie, white, tinted with deep orange-pink; Charlotte Gillemot, creamy-white; Madame de Levasseur, the dwarf Rambler; Caroline Testout; boxes of Maréchal Niel and Mildred Grant, &c.

Mr. Geo. Mount, nurseryman, Canterbury, had a background of Crimson Rambler and Acer Negundo variegatum; cut blooms in vases, and a foreground of boxes of cut blooms of very fine quality. Most of the leading varieties were represented, but at the time of taking our notes very few were named; but it was a representative collection.

Hobbies & Co. (John Green), Norfolk Nurseries, Dereham, had a stand consisting of bunches of Roses at the back, and distributed about, with Sweet Peas, in which the new white Dorothy Eckford was conspicuous; single Cactus Dahlias, Pelargoniums, Carnations, &c.

Tulips.—These were fully represented. Messrs. Hogg & Robertson, nurserymen, Dublin, had a large collection of very finely-developed varieties, which contained fine examples of Ixioides, very fine; Gesneriana Stella, very rich; Ges. spatulata; M. Bottimann, rose, broadly feathered with white; Maid of Holland, flaked scarlet and white; Sultan, nearly black; Caledonia, vermilion, with dark and yellow base; La Merveille, Fairy Queen, &c. That Ireland can produce fine Tulips was admirably illustrated in this collection.

Mr. R. H. Bath, Ltd., Wisbech, had a very good collection also, but many of the bunches drooped in an inelegant manner; Clara Butt, Margaret, Pride of Haarlem, Phyllis, May Queen, Gesneriana lutea, alba marginata, &c., were the foremost examples.

Messrs. Barr & Son, King Street, Covent Garden, had a large collection of Tulips, distinguished by fine quality, the leading varieties Mrs. Kreage, Salmon King, The Sultan, Flambeau, Pride of Ireland, La Merveille, Ixioides, &c., and with the foregoing were associated Narcissi, among which could be seen fine examples of bicolor Glory of Leiden, &c., Ixias, Iris, and general hardy flowers.

Mr. A. D. Hall, Oast House, Harpenden, had a collection of florist's Tulips, chief among them being Dr. Hardy, Lord Stanley, Samuel Barlow, bizarres; Annie McGregor, flamed rose, &c.

The Hon. A. H. T. de Montmorency, Carrick Mine, Co. Dublin, also had a collection of florist's Tulips.

Sweet Peas were shown by several exhibitors.

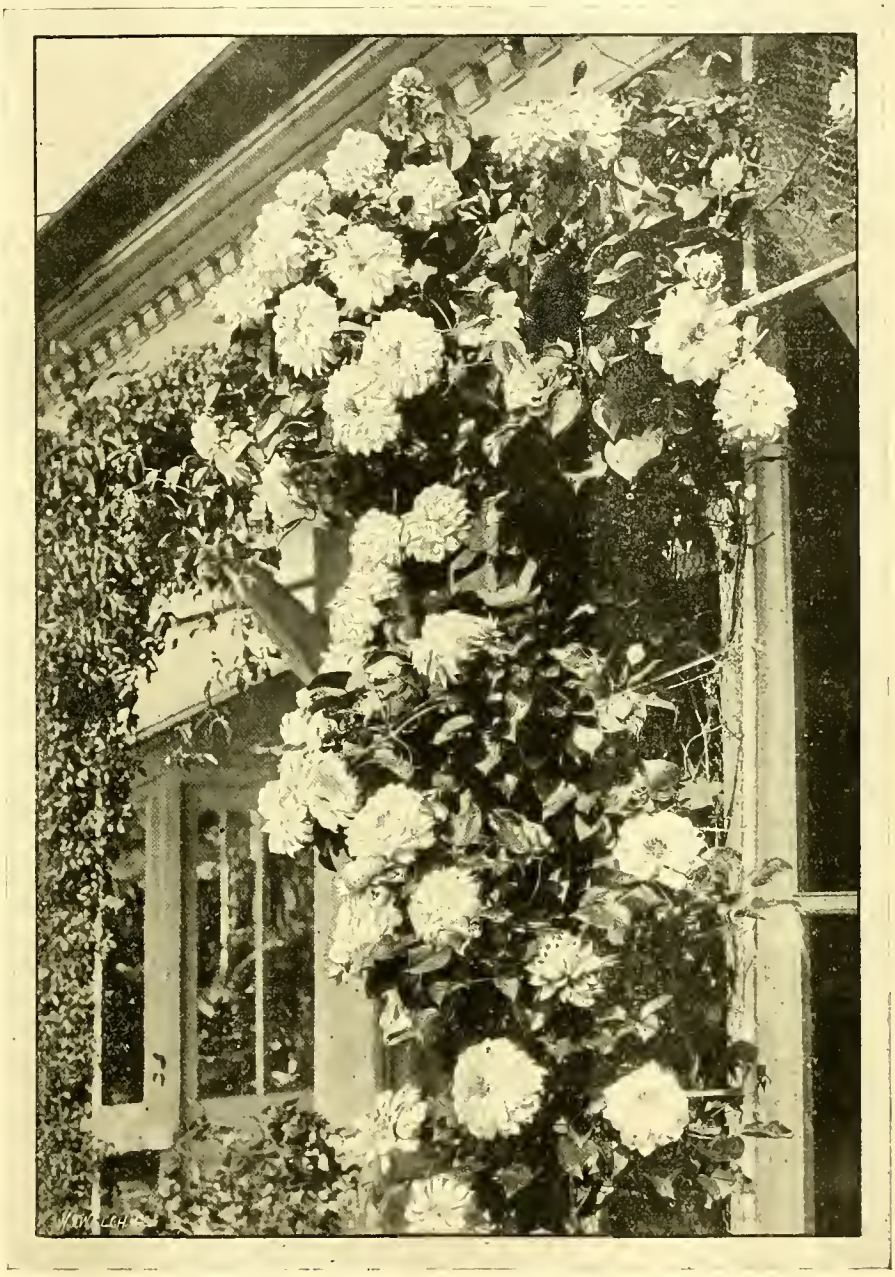

Fig. 134.—Double-white Clematis, "Duchess of Edinburgh," trained on a glass partition.

[*From a Photograph by Mr. F. Mason Good.*]

Miscellaneous Cut Flowers.

A very attractive feature was some very fine bunches of Carnations of splendid quality, staged by Mr. A. T. Dutton, Bexley Heath, viz., G. H. Crane, scarlet; Avalanche, white; Madame Melba, pink; and Mrs. T. W. Lawson, soft pink.

Messrs. Gauntlett & Co., Redruth, had a collection of choice Rhododendrons, such as Dalhousieanum, Aucklandi in variety, Gibsoni, arboreum, &c.; and flowering branches of Embothrium coccineum.

Mr. M. PRICHARD, nurseryman, Christchurch, had choice hardy flowers, including Oriental Poppies, Iris, Trollius, Pyrethrums, Eremurus robustus, &c.

Mr. T S. WARE, Ltd , Feltham, had a similar collection; at the back were flowering stems of Rheum Collinianum, Incarvillea, Iris, Salvia patens alba, &c.

Mr. AMOS PERRY, Hardy Plant Nursery, Winchmore Hill, had an excellent collection also, which comprised Geum Heldreichi superbum, very fine in colour; Trillium grandiflorum, Oriental Poppies, Iris, &c.

Mr. G. YELD, Clifton Cottage, York, had cut specimens of Anthemis Arethusa, pure white, with yellow stamens.

Messrs REAMSBOTTOM & Co., Geashill, King's County, Ireland, had a bank of their Aldenborough St. Brigid Anemones in very fine character.

Messrs. GILBERT & SON, Dyke Nurseries, Bourne, Lincolnshire, had their superb double Anemone King of Scarlets, and others, also Darwin Tulips.

Messrs. PAUL & SON, Cheshunt, had cut Rhododendrons, Lilacs, and Tulips.

Mr. W. J. GODFREY, nurseryman, Exmouth, sent examples of his new Oriental Poppies, chief among them Distinction, pale salmon; and Masterpiece, of a deeper shade.

Scientific Committee.

MAY 19.—*Present:* Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Shea, Gordon, Saunders, Douglas, Massee, and Veitch; Drs. Smith, Cooke, and Müller; Revs. W. Wilks and G. Henslow, Hon. Sec.

Codlin Moth in California.—Mr. Fairhurst, Mitcham, described how the orchards in California, amongst the foothills near to Monterey, about seven miles from the sea coast, have of late years suffered much from the caterpillars of the codlin moth; and each year the plague is becoming worse, in spite of repeated sprayings from the blossoming time up to near the period of ripening. He adds that the bulk of last year's crop of Apples was so bad as to be almost unsaleable. The following is Mr. Saunders' report upon this communication: "The codlin moth (Carpocapsa pomonella) makes its appearance about the end of May. The females lay their eggs on or close to the "eye" of the Apples. Only one egg is laid on each fruit. The young caterpillar is hatched out in about a week or ten days, and at once eats its way into the Apple, working its way down the core to the pips, which it feeds on. In about three weeks or a month it is full grown, and then gnaws its way to the surface of the fruit, and unless (which is frequently the case), the Apple has already fallen, lets itself down by a silken thread to the ground; or, if the Apple is already on the ground, it merely crawls out. In either case it at once endeavours to make its way to the nearest tree, fence, or post, and, crawling up a short distance, finds some crack or other sheltered position, in which it hides and spins a silken web round itself, covered with a sticky substance. Within this shelter it remains during the winter, and early in the spring becomes a chrysalis, from which the moth emerges in May. It is obvious that when once the caterpillar is within the fruit, nothing can be done to kill it without destroying the fruit; but if the tree is duly sprayed before this event takes place, and after the eggs are laid, the crop will to a great extent be saved. The proper time to spray is immediately the blossoms have fallen, and the best insecticides to use are either 1 lb. of Paris Green, kept well mixed in 200 gallons of water, to which should be added an equal amount of lime to that of Paris Green (bulk for bulk), to prevent any injury to the foliage; or a solution of paraffin emulsion may be used with almost equal success. When any Apples fall, they should be picked up at once; and any that are found to contain these caterpillars destroyed. All rubbish, stones, and other things under which the caterpillars could shelter should be removed, as they sometimes have to make shift with such. A number of the caterpillars may be caught by tying hay-bands round the stems of the trees, about 1 ft. from the ground, and another about 3 ft.; or folded strips of old sacking, canvas, or some other similar material should be wired or tied round the trees, the object of these being to afford the caterpillars a convenient resting place, in which to undergo their transformations. These traps should be examined every now and then, and any insects found in them destroyed. The bands should be put into position by the end of May. Before the buds in the spring show any signs of opening, it would be well to spray the trees with a caustic alkaline wash, composed of 1 lb. of caustic soda dissolved in half a bucket of water, then add ¾ lb. of pearlash; stir until dissolved, add enough water to make the mixture up to 10 gals., and then stir in 10 oz. of softsoap which has been dissolved in a little hot water."

Diseased Figs.—Dr. Cooke reports as follows on fruit sent to last meeting: "The Figs were covered about the apex of the fruit with a dense felted mass of a grey mould, which proved on examination to be a species of Botrytis, which does not appear to differ from Botrytis cinerea, already known for its destructive capacity. Originally known only as a saprophyte, it has proved parasitic and fatal to Lilies, and probably under different names to other cultivated plants. In the case of Figs we are not aware that it has been recognised before, and in the present instance no sclerotia have been found. With such a pronounced endophyte there is no hope that a remedy can be recommended.

Melon Disease.—With reference to a common Melon disease, Mr. Massee observed that the spores of Deodryphium comosum, which appears to be the same as Cercospora, enter by the top lights when open much more than from below. He had also found the fungus on the straw manure used, which communicated the spores to the leaves of the Melons or Cucumbers when covered by, or touching, the straw. A high temperature with deficient ventilation was very provocative of the disease.

A vote of thanks to Dr. M. C. Cooke for his numerous investigations and reports was proposed by Dr. Masters, seconded by Mr. Shea, and carried unanimously.

Lemon, dialysis.—Mr. Raphael sent a Lemon, in which the carpels were more or less separated. A similar malformation in the Citron is known as "Buddha's fingers." It came from Mentone. He observed that such or similar malformations are far from uncommon.

LINNEAN.

AT the annual meeting of the Society held on Monday last, it was announced that the late Dr. Prior had bequeathed to the Society a legacy of £100 free of duty. In the course of his presidential address Prof. Vines stated that this was probably the last occasion in which he should have to address Fellows of one sex only, as steps were being taken to procure a supplemental charter, in order to be able to include ladies among the Fellows.

The Professor's address dealt with the subject of proteid digestion in plants, including the formation of "enzymes." The Professor gave a very lucid account of the present state of science in this matter, and of his own personal researches. On the motion of Dr Masters, seconded by Mr. Williams, a unanimous vote of thanks was awarded to the President. Then came the interesting presentation of the Gold Medal of the Society to Dr. M. C. Cooke in recognition of his unwearied labours and very numerous illustrated publications during forty years in the description and classification of fungi. Prof. Vines' address was both elegant and appropriate.

Dr. Cooke in reply stated that at an early stage of his career the Society gave him great encouragement by electing him an Associate, a circumstance which incited him to renewed exertions. Sixty years ago, as a boy, he wandered through the fields with McGillivrays' *Withering* in hand, endeavouring to determine the flowers he met with. He had no one to help him, and consequently his sympathy for the student had dominated his subsequent work, and his efforts had been largely devoted to facilitate the work of the student. With this view he published a book which had passed through eighteen editions, but for which he had received no more than £5!

DUTCH HORTICULTURAL AND BOTANICAL.

APRIL 29.—At the meeting of this society at Overveen, near Haarlem, on the above date, the following awards were made:—First-class Certificate for Tulipa Micheliana, as a new variety, from Mr. P. W. VOET, of Overveen; Honourable Mention for Iris bucharica, as a new plant, from the same grower; and a Silver Medal for a collection of twelve varieties of Narcissus (cut flowers), from Messrs. E. H. KRELAGE & SON, of Haarlem.

At the meeting of the same society on May 13, First-class Certificates were awarded for:—Odontoglossum excellens Thompsoni, from Mr. C. J. KIKKERT, of Haarlem; Rhododendron Madame J. Moses, as a new plant, from Messrs. C. T. FRETS & SONS, of Boskoop; and for Tulipa Mrs. Moon, from S. W. VOET, of Overveen. Botanical Certificates were given for Odontoglossum Adrianæ tigrinum, from Mr. C. J. KIKKERT, of Haarlem; and Tulipa conctnna, as a new plant, from Mr. P. W. VOET, of Overveen. Honourable Mention was awarded for a bunch of La France Roses, from Mr. F. A. HEEMSKERK, of Amsterdam; and Cultural Commendation for Scuticaria Stecki, from Mr. C. J. KIKKERT, of Haarlem.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

MAY 19.—A successful meeting of this society took place at their rooms at the Sunflower Temperance Hotel, George Street, on the above date, and to a very appreciative audience Mr. W. Turney expounded good sensible views on "Popular Horticulture."

Mr. A. EDWARDS, gr., Ambleside, staged some splendid specimens of Souvenir de la Malmaison Carnation, for which a Vote of Thanks was passed.

The next paper will be on June 16, when Mr. W. J. Simpson will discourse on "Heating and Ventilating Horticultural Structures."

Obituary.

EDWARD BERRY.—The many friends of Mr Berry, late gardener to Lord Leven, at Roehampton House, London, will be sorry to hear of his death, which took place on the evening of the 25th inst., at the age of sixty-one years. To his immediate friends the end was not unexpected, deceased having been an invalid for more than eighteen months. In the minds of the older readers of the *Gard. Chron.*, especially those who read the reports of horticultural shows, his name will be familiar, for during the seventies and eighties Mr. Berry was a most successful exhibitor of Roses and Chrysanthemums, and won many cups, medals, and other trophies. A sturdy Irishman, he was possessed of an extraordinary amount of the wit so characteristic of the race, and he frequently related curious incidents experienced at the show benches, in a manner none but an Irishman could adopt. Of a kindly disposition, fond of harmless amusements, and an abstainer from youth, his influence for good was very great, and many men now engaged in serious work can remember the advice given them, and the unique example set them by deceased. This influence was not only felt by men who served under him, but by the younger members of the Working-men's Institute of the parish, of which Institution he was a staunch supporter from its formation, nearly twenty-five years ago.

Deceased was born at Rathfarnham Castle, co. Dublin, where his father was head gardener for eighteen years to Lord Blackburn, and subsequently the son served four years under his father. Following this he was for three years in Sir Robert Shaw's garden, in the suburbs of Dublin. Moving to England he was with Messrs. Hugh Low & Co., of Upper Clapton, for two years; and in the Orchid-houses of Messrs. B. S. Williams & Son, of Upper Holloway, for one and a half years. A considerable time was spent afterwards under the late John McElroy gardener to Mr. Lancaster, of Stamford Hill, N. Mr. Berry eventually came to Roehampton House, as gardener to Lord Leven in 1864, and was a successful exhibitor of Roses and Chrysanthemums for over twenty years, between 1870 and 1890, at the principal shows, including those at Kingston, Richmond, Royal Aquarium, Northampton, Weelwich, and Crystal Palace. He was a member for many years of the Floral Committee of the National Chrysanthemum Society, and a member of the United Horticultural Benefit and Provident Society, and a life member of the Gardeners' Royal Benevolent Institution. Mr. Berry came to Roehampton shortly after his old friend, Michel Davis of Manresa, and several other Irishmen.

Deceased leaves a widow and grown-up family (five sons and one daughter), to mourn the loss of an affectionate father and husband. One son only, H. Berry, late of Ashby St. Ledger, Northampton, is engaged in the profession of gardening. *J. F. McLeod, Dover House Gardens, Roehampton.*

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period May 17 to May 23, 1903. Height above sea-level 24 feet.

1903. May 17 to May 23.	Direction of Wind.	Temperature of the Air. At 9A.M. Dry Bulb.	At 9A.M. Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 17	W.S.W.	47·8	44·9	54·4	44·0	0·14	52·3	51·7	49·9	41·3
Mon. 18	N.N.W.	47·9	43·9	57·3	36·2	...	52·0	51·7	50·0	26·3
Tues. 19	S.S.W.	56·1	48·8	62·7	35·8	...	52·3	51·8	50·1	26·3
Wed. 20	S.S.E.	55·5	51·0	65·2	40·2	...	53·8	52·1	50·2	30·3
Thu. 21	S.W.	58·2	53·0	71·2	45·3	...	54·0	52·3	50·3	34·0
Fri. 22	S.S.W.	69·9	60·0	77·3	45·8	0·03	56·3	53·1	50·5	33·3
Sat. 23	E.N.E.	60·9	53·6	68·3	51·3	...	58·8	54·0	50·7	41·0
Means	...	56·6	50·7	65·2	42·7	Tot 0·17	54·2	52·4	50·2	33·6

Remarks.—With the exception of the first part of the week, the weather has been warm and bright. Small quantities of rain fell on two days.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending May 23, is furnished from the Meteorological Office:—

"The *weather* was unsettled at the beginning of the period, with showers in many places, and thunderstorms over the east and south-east of England; but subsequently it improved greatly, and finally became very fine in all localities except the extreme north-west, where occasional slight falls of rain were experienced.

"The *temperature* as a whole differed very little from the mean, but was slightly above it in most English districts, and a little below it in Ireland and Scotland. The highest of the maxima were registered on Friday, when the thermometer rose to 79° in the Midland Counties and England, S. (at Bawtry and in London), to 78° in England, E., and 75° or 76° in the other English districts. Elsewhere the highest values ranged from 72° in the Channel Islands, to 67° in Scotland, N., and to 62° in Ireland, N. The lowest of the minima, which were recorded during the earlier half of the period, were as low as 28° in Scotland, E., 30° in the Midland Counties, 31° in Scotland, N., and 32° in Scotland, W. In all other districts except the Channel Islands (where the minimum was 45°) the thermometer fell to 35° or below. The range of temperature was unusually large, as much as 46° in England, S., and 49° in the Midland Counties.

"The *rainfall* was just equal to the mean in Scotland, N., but less in all other parts of the kingdom. In Scotland, E., the Channel Islands, and over most parts of England, the fall was very insignificant.

"The *bright sunshine* was much more prevalent than of late, and exceeded the mean in all except the most northern and north-western districts. The percentage of the possible duration ranged from 62 in England, S., 57 in the Channel Islands, and 55 in England, S.W., to 38 in Scotland, W., 33 in Ireland, N., and 32 and 30 respectively in Scotland N. and E."

THE WEATHER IN WEST HERTS: COLD NIGHTS AND WARM SUNNY DAYS.

On the warmest day the temperature in the thermometer screen rose to 78°, a high reading for May, but not an exceptional one. On the coldest night the thermometer exposed on the lawn showed 3° of frost. Consequently the range in temperature was on several occasions unusually great, and on one day the difference between the lowest and the highest readings in the thermometer-screen amounted to as much as 35°. Owing to the cold nights, the ground has not become as warm as it otherwise would have done. At the present time, however, it is about 3° warmer at 2 feet deep, and about 5° warmer at 1 foot deep, than is seasonable. No rain has fallen for eight days. Percolation through the turfed soil gauge has now entirely ceased, while for three days no measurable quantity of rain-water has come through the bare soil percolation gauge. The record of bright sunshine during the last five days has been very unusual, the average daily duration being more than twelve hours, or about twice the mean daily record for the month. The winds have been mostly light, and for the past three days have come from some point between north and east. The dryness of the air has at times been very exceptional, as is shown by the fact that on one day the difference between the readings of an ordinary thermometer and one with its bulb kept constantly wet amounted to as much as 16°, and on another day to 15°.

The first Rose to flower in my garden in the open ground was the Scotch Burnet Rose (Rosa pimpinellifolia), which was out on the 22nd, or six days in advance of its average date for the previous six years, and a week earlier than last year. *E. M., Berkhamsted, May 26, 1903.*

MARKETS.

COVENT GARDEN, May 28.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Azaleas, per doz. bunches	2 0	4 0
Callas, per dozen	1 6	3 0
Carnations, bunch	1 0	2 0
Eucharis	2 0	3 0
Ferns, Asparagus, per bunch	1 0	2 6
— French, per doz. bunches	0 4	0 6
— Maidenhair, doz. bunches	4 0	6 0
Gardenias, p. box	1 6	3 0
Gladiolus, White, per bunch	1 0	1 6
— Blushing Bride, bunch	1 6	—
Gypsophila, per bunch	0 6	—
Iris, per bunch	0 9	1 6
Ixia, doz. bunches	3 0	—
Liliums, White	2 0	4 0
— auratum, per bunch	3 0	4 0
— longiflorum, per bunch	2 0	3 0
Lilium lancifolium, bunch	2 6	3 0
— candidum, per bunch	1 6	2 6
Lily of the Valley, p. doz. bunches	4 0	9 0
Marguerites, yellow, per dozen bunches	1 6	2 0
Mignonette, doz.	2 0	3 0
Narcissus, dozen bunches	1 0	2 0
Orchids: Cattleya, dozen blooms	12 0	15 0
— Dendrobiums, per dozen	2 0	3 0
— Odontoglossums, dozen	2 0	4 0
Pæonies, per doz. bunches	4 0	8 0
Pelargoniums, zonal, dozen bunches	4 0	6 0
— White	3 0	6 0
Pinks, 12 bunches	2 0	3 0
Poppies, Iceland, p. doz. bunches	6 0	7 0
Roses, Mermet	2 0	3 0
— various, per bunch	1 0	4 0
— red, p. bunch	1 0	3 0
— white, bunch	1 0	2 0
— pink, bunch	2 0	5 0
Smilax, doz. trails	1 6	2 6
Stocks, 12 bunches	2 0	4 0
Sweet Peas, per dozen bunches	4 0	6 0
Tuberoses, per dozen blooms	0 6	—
Tulips, all colours, per bunch	0 6	1 0
— Parrot, bunch	0 9	1 0
Violets, 12 bunches	1 6	—
White Bells, per dozen bunches	2 0	3 0

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Adiantums, doz.	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæs, per dozen	9 0	18 0
Aspidistras, doz.	18 0	36 0
Aucubas, per doz.	4 0	8 0
Azaleas, each	2 0	4 0
Calceolarias, doz.	4 0	6 0
Cinerarias, per dozen	4 0	8 0
Coleus, per dozen	4 0	5 0
Crotons, per doz.	12 0	24 0
Dracænas, variety, dozen	12 0	48 0
Ericas, per dozen	8 0	18 0
Euonymus, vars., per dozen	4 0	6 0
Ferns in var., per dozen	4 0	30 0
— Japanese balis, each	1 6	—
Ficus elastica, doz.	9 0	24 0
Fuchsias, p. doz.	4 0	5 0
Heliotrope	4 0	8 0
Herbaceous Perennial Plants in variety, per box	1 0	2 0
Hydrangeas, doz.	8 0	24 0
Ivy-leaved Pelargoniums, dozen	6 0	8 0
Lilium longiflorum, per doz.	8 0	12 0
Lilac, pots, each	2 0	3 6
Lily of the Valley, pots	8 0	10 0
Lycopodiums, dz.	4 0	5 0
Marguerites, doz.	6 0	12 0
Mignonette, doz.	6 0	8 0
Musk, per dozen	2 0	4 0
Orange-trees, each	3 0	7 6
Palms, var., each	3 0	20 0
Pelargoniums, — Oak-leaved, scented, doz.	3 0	4 0
pink, per doz.	4 0	8 0
— scarlet, dozen	4 0	6 0
— show, dozen	8 0	12 0
— white, p. dozen	4 0	—
Petunias, p. doz.	4 0	8 0
— in boxes	1 6	—
Pteris tremula, dz.	4 0	8 0
— Wimsetti, doz.	4 0	8 0
Rose Trees, p. dz.	9 0	18 0
Spiræas, per doz.	4 0	8 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, Australian, including Tasmanian, case	8 0	12 0
Apricots, per box	1 0	1 6
Bananas, bunch	8 0	12 0
— loose, dozen	1 0	1 6
Cherries, per box	1 0	1 6
— sieve	5 0	8 0
Figs, per dozen	4 0	10 0
Grapes, Gros Maroc, lb.	2 0	3 0
— Hamburgh, A., per lb.	3 0	4 0
— — B., per lb.	1 6	2 0
— Muscats, A., lb.	3 0	4 0
— — B., per lb.	1 6	2 0
Gooseberries, per sieve	8 0	9 0
Lemons, per case	15 0	20 0
Lychees, packet	1 0	—
Melons, each	2 0	4 0
Nectarines, A., per dozen	15 0	24 0
— B., per doz.	4 0	8 0
Oranges, per case	14 0	30 0
Peaches, A., per dozen	18 0	30 0
— B., per dozen	4 0	10 0
Pines, each	4 0	6 0
Strawberries, A., per lb.	3 0	4 0
— B., per lb.	1 3	1 9

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen	1 6	4 0
Asparagus, sprue, per bundle	0 6	—
— Foreign	0 6	2 0
— English, per bundle	1 9	3 0
Beans, dwarf, lb.	1 0	1 3
— broad, per flat	3 0	4 0
— Channel Islands, per lb.	1 0	1 3
Beetroots, per bushel	1 9	2 0
Cabbages, per bag	0 6	—
— per tally	1 0	1 6
Carrots, dozen bunches	1 6	2 0
— bag	3 0	4 0
— new, doz.	6 0	7 0
Cauliflowers, per dozen	1 0	2 0
Celery, per dozen bundles	6 0	—
Cress, per dozen punnets	1 3	—
Cucumbers, per dozen	2 6	3 6
Endive, per doz.	2 0	—
Garlic, per lb.	0 4	—
Horseradish, foreign, p. bunch	1 3	1 6
Leeks, per dozen bunches	0 6	0 9
Lettuces, Cabbage, per dozen	0 6	1 0
Lettuce, Cos, per dozen	3 0	4 0
Mint, dozen bun.	2 0	—
Mushrooms, house, per lb.	0 8	0 10
Onions, per bag	6 0	6 6
— green, per dozen	1 6	2 0
— picklers, per sieve	3 0	3 6
Parsley, per doz. bunches	1 0	1 6
— sieve	0 6	1 0
Peas, per flat	4 0	5 0
— frame, per lb.	1 3	1 6
Potatos, per ton	110 0	140 0
— New Teneriffe, per cwt.	10 0	12 0
— New, Kidney, Frame, p. lb.	0 2½	0 3
Radishes, per dozen bunches	0 3	1 0
Rhubarb, Yorks.	1 9	—
— outdoor	3 6	4 6
Salad, small, punnets, per doz.	1 3	—
Spinach, per bushel	0 6	1 0
Tomatos, Canary, deeps	4 0	—
— Channel Islands, per lb.	0 5½	0 6
— English, new, per 12 lb.	6 0	7 0
Turnips, p. dozen	1 6	2 0
— bags	1 6	2 0
— new, bunch	0 4	0 6
Vegetable-Marrows, per dozen	6 0	9 0
Watercress, per dozen bunches	0 4	0 6

REMARKS.—A few English Peas were observed on the market, but there was very little corn in them; Rhubarb is selling remarkably well for the time of year; old Potatos are a little easier in price; new ones are in variety: Jersey fetch per cwt., 15s. to 16s.; St. Malo 15s.; Teneriffe 10s. to 12s.; Cherbourg 13s.; Lisbon per box, 4s. 6d., 5s. French Cherries are coming in a variety of packages.

POTATOS.

Various samples, 100s. to 120s. per ton; Dunbars, red soil, 130s. to 140s. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

GLASGOW, *May 27.*—The following are the averages of the prices during the past week:—Apples, American Baldwin's, 22s. to 26s. per barrel; Ben Davis, 24s. to 34s., do.; Greenings, 20s. to 30s. do.; Canadian Baldwins, 25s. to 32s. do.; Greenings, 20s. to 30s. do.; Spies, 25s. to 34s. do.; various, 20s. to 38s. do.; Oranges, Valencias, ordinary 420's, 12s. to 14s. 6d. per box; large 420's, 15s. to 18s. do.; extra large 420's, 18s. to 24s. do.; 714's, 15s. to 18s. do.; Onions, Egyptian, 6s. 6d. to 7s. 6d. per cwt; Lemons, 4s. to 5s. per box, and 7s. to 12s. per case; Grapes, English, 2s. to 3s. per lb.; Almerias, 12s. to 20s. per barrel; Tomatos, 2s. 6d. to 4s. 6d. per box.

LIVERPOOL, *May 27.*—*Wholesale Vegetable Market.*—Potatos, per cwt. Bruces, 4s. 9d. to 5s.; Main Crop, 5s. to 5s. 6d.; Up-to-Date, 4s. 4d. to 4s. 9d.; Jersey, 14s. 6d. to 15s; Turnips, Swedes, 1s. 6d. do.; Carrots, 2s. 6d. to 3s. 6d. do.; Onions, foreign, 5s. to 5s. 6d. do.; Parsley, 4d. to 6d. per dozen bunches; Lettuces, 8d. to 10d. per dozen; Cucumbers, 1s. 6d. to 3s. 6d. per dozen; Cauliflowers, 1s. 3d. to 2s. 6d. do.; Cabbages, 4d. to 9d. per dozen. *St. John's.*—Potatos, 1s. 2d. to 1s. 4d. per peck; Asparagus, 2s. 6d. to 4s. per 100; Peas, 6d. per lb.; Cucumbers, 3d. to 6d. each; Gooseberries, 6d. to 8d. per lb.; Grapes, English, 2s. 6d. to 3s. per lb.; Pines, foreign, 3s. 6d. to 6s. each; Mushrooms, 1s. 6d. per lb. *Birkenhead:* Potatos, 1s. to 1s. 4d. per peck; do., new, 1½d. to 2½d. per lb.; Peas, 6d. to 1s. per lb.; Asparagus, 2s. to 4s. per 100; Cucumbers, 2d. to 6d. each; Strawberries, 2s. to 6s. per basket; do., French, 1s. per lb.; Peaches, 6d. to 8d. each; Cherries, French 8d. to 1s. per lb.; Apricots, 1s. to 1s. 6d. per dozen; Gooseberries, 6d. to 8d. per lb.; Grapes, English, 2s. to 4s. per lb.; Mushrooms, French, 1s. to 1s. 4d. do.; Filberts, 6d. do.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending May 23, 1903, and for the corresponding period of 1902, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1902. s.	1902. d.	1903. s.	1903. d.	Difference. s.	Difference. d.
Wheat	31	6	27	10	— 3	8
Barley	25	4	23	7	— 1	9
Oats	22	6	18	5	— 4	1

SEEDS.

London, *May 27.*—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that to-day's market presented quite a holiday appearance, with almost a complete absence of business. A few belated sowing orders still come to hand; indeed the present season is proving a remarkably late one. Meantime, it appears probable that less Red Cloverseed will be carried over this year than ever before known. Tares move off slowly at easier rates. There is no alteration in either Mustard or Rape seed. Haricot Beans continue scarce and strong, whilst Peas although quiet for the moment are firmly held. With regard to Canary-seed, no fresh feature shows itself.

TRADE NOTICE.

Mr. C. A. Murton, who has for many years occupied a responsible position in the office of Messrs. Daniels Bros., Ltd., nurserymen, Norwich, has been engaged as secretary and cashier to Messrs. Jarrold & Sons, Ltd., printers and publishers, Norwich.

Answers to Correspondents.

Beans Diseased: *G. P.* The disease suggests the presence of eelworm, but it is impossible to say with certainty from the scraps sent. Water with a solution of nitrate of soda.

Books—Fungoid Diseases of Plants: *Vitis. Microscopic Fungi*, by M. C. Cooke, 6th edition; published by W. H. Allen & Co., 13, Waterloo Place, S.W. This work is chiefly concerned with Rust, Smut, Mildew, and Mould. *Diseases of Plants, induced by Cryptogamic Parasites*, by Tubeuf and Smith; published by Longmans, Green & Co.

Cactus Dahlias for Cut Flowers: *Ramee.* Mrs. Arbuthnot, pale canary yellow, almost white at the tips of the florets, very narrow florets; J. W. Wilkinson, deep rosy-crimson, very large, a model flower; Lord Brassey, of a rose-pink tint with mauve shading.

Cactus Dahlias in December and January: *Ramee.* There is a demand for any bright looking flowers at the winter season.

Carnations for Market, Winter Flowering: *Ramee.* Pride of the Market, pink tint; Sylvanus, true purple; W. Robinson, scarlet, and Winter Cheer.

Caterpillars on Apple-trees: *F. H.* The caterpillar is that of the winter moth; the Apple Psylla is also present, and the leaves are blistered as the result of frost injury. An application of Paris Green would destroy a number of the caterpillars; but as your trees are evidently suffering from bad cultivation, we would advise you to collect the caterpillars by jarring the branches over a sheet or tarpaulin. Paris Green (arsenite of copper, poison) may be used for Apple-trees and most species of shade trees, at the maximum rate of 1 lb. to 200 galls. of water. Peach-trees are apt to be injured by Paris Green, and the mixture for them should be much weaker. Apply forcibly as a fine spray, and well agitate the mixture whilst being used, or the poison will sink to the bottom of the vessel. To make the mixture more adhesive, let it be combined with 1 gallon of kerosene to 100 gallons of the former.

Cœlogyne cristata Leaves Decaying: *Correspondent.* There is no evidence of fungus. The damage may be caused by drip from the roof, by condensed moisture of an unwholesome character, by foul air such as might arise from the drains, by excessive heat, especially when this comes direct from highly-heated pipes; or from some similar cause. There is little doubt that the mischief is caused by some unhealthy conditions in the house in which the plants are grown.

Cratægus: *Gardens, Woodgate.* We suspect the injury has been caused by severely cold winds, which were common a short time since.

Coarse Grasses and Clovers: *L. G. P.* The enclosed grass, possibly Cocksfoot, may be smothered out of existence by the finer grasses if you apply nitrate of soda at the rate of 2 ozs. per square yard, or basic slag in about the same amount. If the Clover is a strong growing species, spudding would be the better remedy, sowing the bare places, if any, with seeds of lawn grasses.

Cryptomeria. A correspondent sends specimens of curious excrescences formed of adventitious buds. The appearances may be judged by our illustration (fig. 135).

Figs Diseased: *G. Richardson.* The fruits are overrun by Botrytis cinerea; destroy every fruit so diseased by burning. See report of Scientific Committee in present issue.

Fig. 135.—Excrescences from Cryptomeria.

Gloriosa superba. At p. 324, May 23, the omission of a stop and the substitution of a small for a capital letter in the paragraph 3, Gloriosa grandiflora, makes it appear that this species is of the dwarf section. The heading, "Of the Dwarf Section," was meant to apply to the three species enumerated afterwards, viz., G. abyssinica, G. Carsoni, and G. minor.

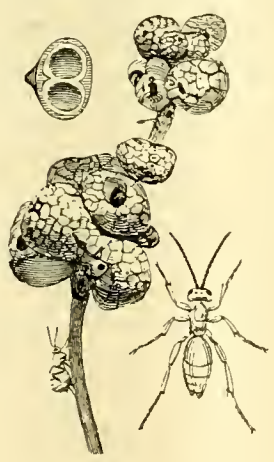

Fig. 136.—Cynips aptera.

Head Gardener: *Tyro.* Without an inspection of the garden, houses, &c., we are unable to reply to all the questions contained in your letter. A wage of £100 a year, taking into consideration the "good house" provided, the number of assistants allowed, the small amount of glass and extent of the garden, would be in excess of that usually given. The term "first-class gardener" can only be taken relatively to the duties to be undertaken.

Holly: *F. W. P.* The leaves are infested with the larvæ of Phytomyza ilicis, not the same as the leaf miners of other plants.

Larch-trees Dying: *A. Austin.* The leaves are scorched with salt spray, brought by some gale off the sea. This kind of injury has been very prevalent during this spring on the south coast, the affected trees being in some instances between thirty and forty miles inland.

Mildew on Tacsonia, &c.: *C. W. D.* The primary cause of injury to both plants is due to the punctures of insects, the injured places being afterwards attacked by the Cyclamen-mould, Septoria cyclaminis. Spraying with an insecticide, or fumigation, would rectify matters.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*E. T.* A very good Odontoglossum × Andersonianum, of the "hebraicum" class.—*C. S. B., Oxted.* Cattleya granulosa.—*V. I.* 1, Bifrenaria aurantiaca; 2, Lycaste Deppei; 3, Maxillaria tenuifolia.—*H. J.* 1, Pyrus pinnatifida; 2, Mespilus germanica.—*Westram.* 1, Sedum Sieboldi variegatum; 2, Deutzia crenata, double fl.; 3, Ribes, not recognised; 4, Berberis dulcis; 5, Cymbidium Lowianum.—*W. D.* 1, Ribes fuchsioides; 2, Coronilla Emerus.—*J. H.* We cannot name the variety of Tulip.—*C. Palmer.* Prunus Padus, Bird Cherry.—*S. L.* Dendrobium transparens.—*Gardener.* 1, Xylophylla latifolia; 2, send in flower; 3, Phalaris arundinacea variegata; 4, Acer palmatum atropurpureum; 5, Fabiana imbricata; 6, Quercus Suber (Cork Oak); 7, Alyssum saxatile.—*H. J.* A seedling of Cereus speciosissimus.—*Southwick.* 1, Phillyrea latifolia; 2, not recognised; 3, Prunus Padus.—*W. J. R.* Melia Azedarach.

Peach Leaves Deformed: *F. Juniper.* See last and previous issues of the *Gardeners' Chronicle* for methods of procedure.

Pelargonium: *W. B. S.* The leaves are attacked by Botrytis, which is favoured by excessive moisture, and want of ventilation. Remove diseased leaves, and spray with sulphide of potassium.

Prolifien Cucumbers: *J. H.* Yours is one of many that has reached us this season. You will find it figured and described in our columns, September 21, 1901.

Regal Pelargonium-leaves Diseased: *F. W. S.* There is no fungus present, and the blotches strongly suggest scorching.

Root Gall: *W. T.* The growth you send on the Apple-root is the work of a gall-fly, Cynips aptera (fig. 136), which deposits its eggs, and sets up irritation and swelling on the root, and thus provides a store of food for the young grub. Of course it is injurious, but not to any great extent.

Silver-leaf Disease of Plums, Laurels, &c.: *T. K.* Nothing is as yet known of a remedy for this disease, which is supposed to be due to the action of a fungus. Cut off and burn all diseased branches.

Tomatos: *E. B.* It is impossible to state the cause of disease without examination of an entire plant, the cause of which probably exists in the root.

Tomato: *M. G.* The lower portion is mined by wireworms. Point-in a quantity of soot mixed with a little guano and water thoroughly. This will arrest the wireworms, and enable the plants to start new roots above the diseased parts. The wireworms have probably been introduced along with the loam, which should in future be sterilised by baking, steaming, quicklime or gas-lime.

Vine Leaves Disfigured: *Bob.* The leaves indicate the presence of an obscure disease, named, for want of a better name "Browning." We know of no certain cure, and would advise the removal of every contaminated leaf, and its destruction by burning. With a spraying syringe, afford the Vine a dressing of sulphide of potassium, ½ oz. dissolved in 1 gallon of water. Repeat this several times at intervals of five or six days.

Communications Received.—M. F. C.—J Hoog, Haarlem—C. P. R. (previously figured)—S. W F.—J. G. B.—A. C. F.—F. C.—C. P. R.—G. D.—C. A.—C. P.—W. J.—G. T.—E. T.—Froggatt.—J. T. R.—M.—Vistis.—A. W.—Puzzled.—T. G.—E. G.—A. H.—W. B. H.—S. C.—S. W. F—H. J. C.—J. L.—J. B.—B. & S.—J. Fraser Smith

Androsace lanuginosa: Flowers Pale Rose.

THE ROYAL HORTICULTURAL SOCIETY.

THE TEMPLE SHOW.

(May 26, 27, 28.)

(*See also pp.* 344 *and* 349.)

The sixteenth annual exhibition in the gardens of the Inner Temple, Thames Embankment, has been held in glorious weather, except for thunder showers on the third day, and proved a great success, being one of the best displays that have been held in these famous gardens. The number of exhibitors was about 110.

A letter, relating to the taking of photographs at the Society's exhibitions, which we in common with the other members of the Horticultural Press received a short time since from the Council of the Royal Horticultural Society, precluded us and our colleagues from giving any illustrations of the Temple Show.*

ORCHIDS.

The show of Orchids was one of the best which has yet appeared at the Temple, and the Odontoglossums were specially fine and numerous.

AMATEURS.

Arranged in bower-like form at one end of the central staging of the main Orchid tent, was a very fine group of profusely flowered specimens of Vanda teres, from the gardens of Leopold de Rothschild, Esq., Gunnersbury Park (gr., Mr. Reynolds), and which was one of the most effective exhibits in the show. The tall back was set up with graceful Palms and Bamboos, and the lower part had a setting of Maidenhair Ferns, the whole being skilfully worked in together.

Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), staged a very fine and effective group, in which the forms of Miltonia vexillaria were remarkable; also M. × Bleuiana, a brilliant selection of Masdevallia coccinea varieties, M. Lindeni, M. Veitchiana, M. Carderi, and M. × Pourbaixi; Maxillaria Sanderiana, Cymbidium tigrinum, and a grand specimen of C. Lowianum, with eleven spikes (Cultural Commendation). A very remarkable series of species and varieties of Odontoglossum, including forms of O. crispum, O. Halli, O. cordatum, O. × Andersonianum, the finely coloured O. × ardentissimum Wigan's variety, O. × loochristyense, O. tripudians, O. × Wilckeanum, O. hastilabium, O. citrosmum album, and others; Cypripedium bellatulum album, C. caudatum, C. Druryi, C. Godefroyæ leucochilum, C. × W. H. Young, C. Rothschildianum, C. Lawrenceanum Hyeanum, Zygonisia × Rolfeana, Phalænopsis Sanderiana, P. Luddemanniana, a good selection of Dendrobiums, Lælia purpurata varieties, Trichopilia tortilis, Epidendrum Medusæ, Sobralia macrantha alba, a finely-flowered mass of Cœlogyne Schilleriana, and other interesting species.

Jeremiah Colman, Esq., Gatton Park (gr., Mr. W. P. Bound), arranged a beautiful group with collections of brilliant Masdevallias at each end, a fine lot of varieties of Miltonia vexillaria, fronted with albino Cattleyas in the middle, the body of the group filled in with fine Odontoglossums, of which the new O. crispum Colmanianum, with heavy reddish-purple blotching, was by far the best. Other fine spotted forms were O. c. Margery Tyrrell Giles and O. c. castanea; good Cattleya Skinneri alba, C. intermedia alba, and other white forms; two fine and dissimilar varieties of Cattleya Mossiæ Reineckiana, and other fine Cattleyas were also noted.

Richard Ashworth, Esq., Ashlands, Newchurch, Manchester (gr., Mr. Pilsley), staged a small group of fine blotched Odontoglossums, of which O. crispum Moortebeekiense was a magnificently marked form; O. c. Margery, very pretty, and peculiarly constructed; O. c. Rosemount, O. c. Griselda, O. c. Priam, and O. c. Mariana, all good and distinct.

J. Rutherford, Esq., M.P., Bearwood, Blackburn (gr., Mr. Lupton), staged an effective group, in which the best things were Cattleya Mossiæ "Sir Alfred Milner," a fine white, with rose and yellow lip; various other good white Cattleyas, and his fine Odontoglossum × Queen Alexandra.

The Hon. Walter Rothschild, Tring Park (gr., Mr. E. Hill), showed several hybrid Orchids, and the handsome Schomburgkia Galeottiana (see Awards).

Norman C. Cookson, Esq., showed Phaius × Phœbe aureus, and two other fine plants (see Awards).

* We have received communications to this effect from the proprietors and editors of *Amateur Gardening*, *Gardening Illustrated*, the *Gardening World*, the *Gardeners' Magazine*, the *Journal of Horticulture*, and the editor of the *Garden*.

NURSERYMEN'S EXHIBITS.

In these Messrs. Sander & Sons, St. Albans, took the lead with a magnificent group of fine things, no ordinary plants being among them. Odontoglossums, plain and spotted, species and hybrids, appeared in bewildering profusion, the quality throughout being so good as to render selection other than the best novelties difficult. Among the Odontoglossum crispum forms O. c. F. K. Sander was one of the best ever shown, fine in size, shape, substance, the greater part of the segments taken up with rich crimson-purple blotching; the lip is large, and well displayed, and blotched with purplish-red in front of the yellow crest. This, and most of the other fine things in Messrs. Sander's group, were not entered to go before the committee. O. crispum Rosy Dawn was a fine purple-tinted, spotted form; O. c. Black Watch, white, heavily marked with purple; O. × Wilckeanum and other hybrids were represented by fine forms; Lælio-Cattleya × Digbyano Mossiæ, Sander's variety, was wholly of a warm rose tint with yellow disc, and quite different from others previously exhibited; L.-C. × Canhamiana Rex and L.-C. Canhamiana Fire King, were two magnificent and quite dissimilar forms; and others noted were a fine form of Cypripedium × Miss Louisa Fowler, good C. caudatum, Chondrorhyncha Chestertoni, Angræcum pertusum, Renanthera Imschootiana, Lælio-Cattleya × Herode, Cattleya × Vulcan, and C. × Goossensiana.

Messrs. William Bull & Sons, Chelsea, had a very fine and well arranged group, in which were several good spotted Odontoglossums, of which O. crispum Chelsoni was profusely blotched with purple, and was a fine thing. Others noted as distinct were O. c. denticulatum, with finely toothed petals; O. c. Primrose Dame, pale yellow; O. × Wilckeanum Nestor, a large, finely spotted flower; O. × Adrianæ chelseiense, very distinct; Cattleya Mossiæ chelseiense, white tinged with lavender; a white-lipped C. Mendeli; a fine Odontoglossum Pescatorei; Cattleya Mendeli Rosalie, with well-coloured lip; good Lælio-Cattleya × Canhamiana, Cypripediums, &c.

Messrs. J. and A. A. McBean, Cooksbridge, noted for their fine culture of Odontoglossums, staged an extensive group, in which both the flowers and the plants were of the best. About 150 specimens were staged, chiefly the finest white forms of O. crispum, some spotted varieties, including O. c. Trianæ, and others. The plants were grown very cool, and the spikes of many were said to have been on the plants in full bloom for six weeks.

Messrs. Hugh Low & Co., Bush Hill Park, staged a magnificent group, rich in good things, new and old. Of the old favourites two enormous specimens of Cattleya Skinneri showed that fine plant at its best; the many forms of Cattleya Mossiæ included the gigantic and finely coloured C. M. Hercules, the pure white C. M. Wageneri, the white-petalled C. M. Reineckiana, and other fine forms.

Messrs. Charlesworth & Co., Heaton, Bradford, had an extensive group rich in fine Odontoglossums and hybrid Orchids. Of the former, Odontoglossum crispum "The Kaiser" was heavily blotched with purple; O. c. Beatrice, a fine flower, richly marked with yellowish-red; and other remarkable varieties appeared. Of the hybrids noted were forms of Lælio-Cattleya × Fascinator, two of which secured Awards; L.-C. × Hyeana splendens, L.-C. × Gen. Baden-Powell, L.-C. × Dora, L.-C. × Digbyano-purpurata, a fine batch of the rich yellow L.-C. × G. S. Ball, and its finer variety magnifica; L.-C. × Aphrodite nobilior, Lælia × Helen, Brasso-Cattleya × nivalis, and B.-C. × striata, Cattleya Mossiæ Reineckiana, Cypripedium × Edithiæ, &c.

Messrs. Jas. Cypher & Sons, Cheltenham, had a very extensive group of well-grown plants staged in their usual effective manner, and made up of fine Odontoglossums, brightly coloured Masdevallias, Lælio-Cattleya × Hyeana, and other Lælio-Cattleyas; Vanda teres, Cypripedium × Haynaldo-Chamberlaini, and other Cypripediums; Cattleya citrina, and other Cattleyas; Epidendrum radicans, E. × O'Brienianum, scarlet Sophronitis, Oncidiums, &c.

Messrs. John Cowan & Co., Gateacre, Liverpool, had a good group, with some spotted forms of Odontoglossum crispum, fine Cattleya Mendeli, C. Skinneri, C. intermedia alba, Calanthe × Domini, C. veratrifolia, Dendrobium Bensoniæ, D. atro-violaceum.

Messrs. Stanley, Ashton & Co., Southgate, showed Cattleya Mossiæ Wageneri "Edward VII.," a grand pure white flower, with bright yellow disc to the lip.

Messrs. B. S. Williams & Sons, Upper Holloway, staged an extensive group of Cattleyas, Odontoglossums, Lælias, Lælio-Cattleyas, and other showy Orchids.

Mr. H. Becker, Jersey, showed distinct varieties of Lælia purpurata.

Messrs. A. J. Keeling & Sons, Westgate, near Bradford, showed Odontoglossum crispum "Westgatense," a spotted variety; Lælia nigrescens aurea, and Cattleya × Enid gigantea.

Mr. John Robson, Altrincham, staged a very good group of Odontoglossums, two Cypripedium callosum Sanderæ, and other showy Orchids.

CONTINENTAL EXHIBITS.

In these M. Chas. Vuylsteke of Loochristy, Gand, Belgium, the great manufacturer of hybrid Odontoglossums, took the lead, his noble forms of the richly coloured O. × ardentissimum, recently noted in the *Gardeners' Chronicle*, being among the finest exhibits in the show. Several of them and the other hybrids will be found in the list of Awards. Of the others, Odontoglossum × meirificum and O. × bellatulum variety were very handsome.

M. Fl. Claes, Brussels, showed a selection of his good strain of Odontoglossum crispum, including several finely spotted forms.

M. Jules Hye de Crom, Coupure, Gand, showed Odontoglossum × amœnum and O. × ardentissimum numosum, the latter securing an award.

Several of the Odontoglossums entered to go before the Committee were disqualified on account of their having been disbudded.

Awards.

First Class Certificates.

Odontoglossum crispum Grairianum, from Norman C. Cookson, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman).—A new type of magnificently-blotched O. crispum, in which the greater part of the sepals and petals is coloured of a glowing yellowish-rose, the margins only being white, with a few fine whitish lines running into the colour. Crest yellow; sepals and petals apiculate.

Odontoglossum × *Wilckeanum venerandum*, from M. Chas. Vuylsteke.—A very handsome, large, and distinct home-raised hybrid, with French-white ground, handsomely blotched with red-brown.

Odontoglossum × *ardentissimum exquisitum*, from M. Chas. Vuylsteke.—The best of M. Vuylsteke's superb hybrids between O. crispum Franz Masereel, and a purple spotted O. Pescatorei, the rich mauve-purple spotting in the hybrids probably coming from the O. Pescatorei. Flower equal to that of a good crispum, a large proportion of the segments being bright mauve-purple, the fringed margins white.

Vanda tricolor tenebrosa, from M. Draps-Dom, Laeken, Brussels.—A superb variety with finely formed yellow sepals and petals, marked with dark red-brown, and rose-crimson labellum.

Cattleya × *Whitei magnifica* (Warneri × Schilleriana), from Sir Frederick Wigan, Bart. (gr., Mr. W. H. Young).—A very large purplish-rose flower, with yellow markings at the base of the lip.

Lælio-Cattleya × *Fascinator splendens*, from Messrs. Charlesworth & Co.—Sepals and petals white, front of lip intense ruby-purple; in form resembling a good L.-C. × Aphrodite.

Awards of Merit.

Schomburgkia Galeottiana, *A. Richard*, from the Hon. Walter Rothschild (gr., Mr. E. Hill).—A very handsome species of the S. tibicinis class, with purple tinted rose flowers, and whitish lip, with rose and yellow markings on the side lobes.

Odontoglossum × *ardentissimum numosum*, from M. Jules Hye de Crom (gr., Mr. Coen).—A very pretty hybrid, with white flowers, handsomely marked with mauve-purple.

Odontoglossum × *ardentissimum concinnum superbum*, from Mr. Chas Vuylsteke.—Flowers closely resembling those of a good blotched O. crispum; white, with heavy mauve-purple blotches; petals fringed.

Odontoglossum × *Vuylstekei exquisitum*, from M. Chas. Vuylsteke.—A very distinct hybrid, with the flowers almost entirely of a reddish-purple colour, the segments having a narrow white margin.

Odontoglossum crispum Diana, from Messrs. McBean, Cooksbridge.—One of the largest and best-shaped of the unspotted crispums. Petals fringed; flowers white; sepals tinged with purple.

Phaius × *Chapmani* (*Phœbe* × *Humblotii*), from Norman C. Cookson, Esq. (gr., Mr. H. J. Chapman).—A

very pretty novelty, with large flowers, the sepals and petals of which are pale rose. Lip broadly expanded, light rose changing to white, the side-lobes marked with red; crest yellow.

Lælio-Cattleya × *Canhamiana Rex*, from Sir Frederick Wigan, Bart. (gr., Mr. W. H. Young).—One of the finest forms of this favourite hybrid. Lip intense ruby-crimson.

Vanda × *Marguerite Maron* (*V. suavis* × *V. teres*).—From M. Chas. Maron, Brunoy, France. A very remarkable hybrid between two widely separated species, the characters of which, however, are evenly blended in the hybrid, the leaves being erect, fleshy, like those of V. teres, but laterally compressed and much larger. Flowers produced like those of V. teres, but with the rose-tinted stalked sepals and petals of firmer substance than in that species. Lip also nearest to V. teres, with red marked side lobes, the middle lobe extended on an isthmus, and coloured ruby-red.

Brasso Cattleya × *striata* (*Brassavola fragrans* × *C. Mossiæ*).—From Messrs. Charlesworth & Co. A pretty hybrid, with narrow rose-tinted sepals and petals, and a large rose-striped labellum.

Odontoglossum crispum "*The Kaiser*."—From Messrs. Charlesworth & Co.—A very fine blotched O. crispum, the markings being of a dark purple colour.

Lælio-Cattleya × *Fascinator nobilior*, from Messrs. Charlesworth & Co.—A very delicately-tinted flower. Sepals and petals blush-white, front of lip soft rose-crimson.

Odontoglossum crispum "*Grand Duchess*," from Richard Ashworth, Esq. (gr., Mr. Pidsley).—A very handsome, heavily blotched form.

Botanical Certificate.

Eulophia Colæ, from Miss Edith Cole, Newbury, Berks.—A Somaliland species allied to E. cafira, and with fleshy, Aloe-like leaves, and straight spikes of small greenish flowers.

GROUPS OF PLANTS.

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, furnished a long length of table in the great narrow tent, and displayed some of their specialties in indoor flowering plants. The Streptocarpus were as showy as any plants in the group, and the pretty new Chinese rock plant, Corydalis thalictrifolia, was well shown in flower. Schizanthus wisetonensis was a brilliant mass of flowers; the freer growing type, S. pinnatus, was also shown in many varieties, whilst the new Kalanchoe × Felthamensis, recently described in these pages, was seen by most of the exhibitors for the first time. The Phyllocactus were more brilliant than ever, every plant bearing flowers. They exhibited a large quantity of hardy plants in bloom in pots, including some very beautiful hybrid Rhododendrons, and Azalea mollis hybrids. Other good plants were Philadelphus Lemoinei, P. Avalanche, an exceedingly graceful white flowered variety; P. coronarius primulæflorus, slightly larger as regards the flower and leaf, but of the same graceful habit; also P. c. erectus, a distinct upright grower; and the yellow flowered Genista prostrata, shown as a standard on a 5-ft. stem; Lilium Henryi, with orange-coloured flowers, 6 inches wide; Alstrœmeria versicolor aurea, with light yellow-coloured flowers; Deutzia gracilis rosea, the blossoms larger than the type; Hydrangea Hortensia rosea, furnished with very fine flower-heads; a light blue-coloured form of Hydrangea Mariesii, Laburnum Vossii, &c.

Messrs. J. Veitch & Sons had arranged in the marquee a beautiful group of miscellaneous warm-house plants, in which Codiæums, Caladiums, Dracænas, Tillandsias, Marantas, were the more conspicuous objects. Among the first-named which were employed as dot plants were Countess superba, a graceful yellow and green-leaved variety; C. Aneitemensis, of erect growth; C. Lucy, with crimson and bronzy-green leaves, narrow and pendent; C. Reidi, very large leaves, green and yellow whilst young, veins and surface suffused with crimson when aged; the bright looking C. Queen Victoria superba, C. caudatus tortilis. Of Caladiums, mention may be made of Madame E. Pynaert, crimson; Lady Mosley and Sir O. Mosley, L. A. Van Houtte, Noaksii, and Sir H. Irving. Of Dracænas, there were Exquisite, with young leaves of a creamy tint, with a pink suffusion, older ones deep green, edged with pale pink; The Queen, of similar tints, but the leaves narrower. Dieffenbachia Fournieri is a strangely beautiful species, with dark green foliage, spotted and splashed with black and white; Tillandsia zebrina major, having broad bars of a purplish-black hue on the leaves; Maranta Van den Hecki, prettily marked leaves; Microstylis intermedia, Leea amabilis splendens, Nepenthes, with fine pitchers; a few plants of Anthurium King Edward VII., having large spathes of crimson colour; Aralia Kerchoveana, and other plants. A Gold Medal was awarded for this group.

Streptocarpuses were shown well by Lord Aldenham, Aldenham House, Elstree (gr., Mr. Ed. Beckett). The plants made a large group, and were not only well grown, with a profusion of flowers, but they represented a great number of varieties, and constituted an up-to-date collection.

Mr. T. Jannoch, Dersingham, King's Lynn, exhibited a group of Lilacs in pots, and fine plants of Lilies of the Valley.

Messrs. W. & J. Brown, Stamford, exhibited plants of Verbena hybrida var. Miss Willmott; also Heliotropes, Pelargoniums, &c.

Messrs. J. Carter & Co., High Holborn, London, exhibited in the tent near to the main entrance an exhibit containing displays of some of the firm's specialties. There were double and single flowered Petunias, Schizanthus, herbaceous Calceolarias, &c.

Messrs. Sutton & Sons, Reading, who had all their exhibits in an ornate structure provided specially by themselves in the grounds, had flowering plants, fruits, and vegetables of the highest merit. The Gloxinias made an excellent and showy group. Particularly good were Duke of York, purple; Duchess of York, purple with white margin; also varieties of the spotted type, of which Empress is a good example; and Scarlet Queen. Her Majesty, the finest white variety in cultivation, and many others, were included in this display. A group of Cineraria stellata was charming, the strain being a particularly good one, having abundant small flowers of a great variety of colours, and a branching inflorescence. In the centre of this group there were some plants of Senecio auriculatus, with small single yellow flowers; these had been raised from seeds, and were very suitable for mixing with the other colours. The herbaceous Calceolarias were perfect specimens of good cultivation and excellent strain.

Various large groups of plants were arranged in the large marquee along with the Orchids and Roses. Of Caladiums, which in former years formed an important part of the exhibits, those shown by Messrs. Peed & Sons, nurserymen, Roupell Park, Norwood Road, S.E., were arranged so as to form a bank abutting on the side of the marquee. The varieties were chiefly such as have been in commerce for several years, of new varieties there being very few. A few struck us by their novelty in colouring, viz., Rameau, green margin, and crimson in the middle area, and the veins and spots white; Le Nain Rouge, with a deep crimson-tinted leaf, a wire-like margin of a green tint; Rio de Janeiro, bright rosy-crimson, edged with a greenish tint, and irregularly; Oriflamme, crimson, margin green, 1½ in. wide—one of the prettiest; W. E. Gladstone, of deep crimson tint, with brighter tint of veining. Altogether this was a very fine group, and perhaps the finest which Messrs. Peed & Sons have ever shown.

Messrs. W. Bull & Sons, New Plant Establishment, Chelsea, showed a mixed group of hot-house plants, including many Dracænas of new and old varieties, of which we may name: D. Goldieana, D. argentea striata, D. Alexandra, with bright pink, cream, and green tints in the leaf; Codiæums in variety, and of fine tints; also Nidulariums, some being in bloom and others pushing up the flower-shaft. A few Nepenthes including plants of Burkei and Mastersiana, Alocasia Sanderiana, and many old favourites in foliage plants, the whole being backed with Tree Ferns and Palms for contrast sake.

Mr. W. Iceton, Florist, Putney Park Lane, S.W., showed a bed of Lily of the Valley, the blooms of fine size and very numerously produced on the plants. Indeed, the exhibit was one of the best we have observed. The exhibit was set off by numerous plants of Boronia heterophylla, and some foliage plants.

Mr. John Russell, Richmond Nurseries, Richmond, Surrey, showed Alocasias in the place of Codiæums and Dracænas. Nothing novel was noted, but every plant was well grown and in true character. We observed A. mortefontainensis, A. Johnsoni, A. Sanderiana, A. Thibautiana, A. metallica, A. Lowii grandis, A. Martin Cahuzac, with big leaves having a metallic sheen veined with silver; A. Watsoniana, resembling the last-named; the old A. macrorhiza variegata, and several others.

Messrs. Sander & Co., St. Albans, exhibited in this tent some plants of Ficus pandurata, one being of particularly fine growth (see fig. 116 in *Gardeners' Chronicle* for May 2, 1903, p. 284); Pandanus Pancheri superbus, Dracæna kewensis, Palms in variety, Heleconia Edwardus Rex, H. illustris superbus, Alpinia Sanderæ, Pteris Maissonæri, &c. Besides these, this firm showed Clianthus Dampieri in well bloomed examples. We observed among Messrs. Sander's new plants one large specimen in excellent bloom of Nicotiana Sanderi, having rosy-pink coloured flowers, and a general resemblance to N. affinis. Other new plants were Polypodium Knightiæ, and Selaginella Watsoniana. An Award of Merit was given. Nicotiana rubra, a species of similar habit, having deep red flowers of a smaller size, was likewise shown.

Mr. A. J. A. Bruce, nurseryman, Edge Lane, Chorlton-cum-Hardy, exhibited a comprehensive group of Sarracenias, Dioneas, Droseras, Darlingtonias, Cephalotus, &c., all plentifully supplied with pitchers.

Messrs. Hill & Sons, Barrowfield Nurseries, Lower Edmonton, set up a picturesque group of exotic Ferns in the perfection of health; and good specimens were noted of Davallia aculeata, Adiantum Williamsii, A. Veitchianum, Selaginella oregana, and others.

The Ranelagh Nursery Co., Royal Leamington Spa, exhibited some good plants of Asparagus myriocladus, an excellent species that gained an Award of Merit at the Holland House Show last year. It is a beautiful plant for putting into vases, and is said to rarely grow more than 3 feet high in the exhibitor's nursery.

Mr. H. B. May, Dyson's Road Nursery, Upper Edmonton, showed a group of fine zonal-leaved Pelargoniums; also a capital exhibit of choice Ferns and other ornamental foliage plants.

Messrs. W. Balchin & Sons, Hassocks Nursery, Sussex, made a wonderful display of hardwood greenhouse plants and other species, of which they have so well learned the secret of successful cultivation. We have not space to enumerate these, but most of our readers know the plants meant.

ROSES.

It is appropriate to the season of the year that Roses should be a leading feature at the Temple Show. Roses are now so largely grown for commercial and decorative purposes, that the supply at the end of May is always a bountiful one. The three large collections of plants in the Orchid tent gathered about them as large groups of interested visitors as any other feature.

Messrs. William Paul & Son, Waltham Cross, had a fine and imposing collection of plants, which comprised such popular forms as Dorothy Perkins, Tea Morning Glow, of a peculiar tint; Sunrise, Field Marshal, a crimson climbing variety; Empress Alexandra of Russia, of a rich apricot shade; Waltham Rambler, blush, edged with pink, a very pretty and free-blooming variety, &c. This collection was admirably arranged, but the system of naming which has to be adopted makes it extremely difficult for visitors to decipher them.

Mr. Charles Turner, Royal Nursery, Slough, staged a fine and imposing bank of plants, in which the Crimson Rambler, large in bloom, and rich in colour, played a prominent part; and though some thought this variety was too obtrusive, it should be borne in mind that the collection from Slough occupied the shadiest end of the large tent, and colour was needed to give effect to it. Roses of the Wichuriana type, as well as Mrs. J. Laing, Queen Alexandra, Souvenir de Pierre Notting, Maman Cochet, L'Innocence, and others, were in fine character.

Messrs. Paul & Son, Old Nurseries, Cheshunt, had their usual position in the right hand corner, and they also had a fine assortment, which included Tea Queen of Sweden, white suffused with apricot and salmon; Mildred Grant, Dorothy, Madame de Watteville, Frau Karl Druschki, Souvenir de Pierre Notting, Madame Edmee Metz, said to be absolutely mildew proof; Madame de Levasseur, &c.

Messrs. B. R. Cant & Sons, nurserymen, Colchester, had a select collection, consisting of Blush Rambler, Mrs. E. Mawley, Lady Mary Beauclerk, the old York and Lancaster, Garland, Moschata alba, Antoine Rivoire, &c.

RHODODENDRONS.

A very fine and imposing group of plants was staged by Messrs. John Waterer & Sons, Ltd., Bagshot, this included Pink Pearl, in very fine character; Charles Waterer, Duke of Connaught, Mrs. Stirling, delicate pink; Mum, white, with yellow spottings; Gomer Waterer, delicate blush, very fine; Marchioness of Waterford, bright rose; the foregoing embracing the leading novelties.

Messrs. J. Veitch & Sons, Chelsea, had in a large collection of flowering plants some hardy Rhododendrons and forms of Azalea rustica, including hybrids of the sinensis (mollis) type.

AZALEAS.

Messrs. R. & G. Cuthbert, nurserymen, Southgate, had a very fine and glowing collection of the mollis type, including several fine novelties, such as Floradora, orange-red, spotted, extra fine; J. C. Van Thol, bright fiery red, large flowers; rustica, Aïda, deep bright pink; Anthony Koster, Jeannette K. Siemen, pink, &c. It seemed that the blooming season of the foregoing had been unusually prolonged.

Mr. C. Turner had in addition to his collection of Roses a few plants of Indian Azaleas.

CARNATIONS.

Martin R. Smith, Esq., Hayes, Kent (gr., Mr. C. Blick), showed one of his superb groups of Carnations, in which the lovely Cecilia, and the best varieties of the Souvenir de la Malmaison type were shown in perfect condition.

A group of Carnations from W. D. James, Esq., West Dean Park, Chichester (gr., Mr. W. H. Smith), was composed of three varieties, the well known yellow Cecilia, the crimson Mrs. H. J. Jones, and an excellent white seedling raised on the place, called Mrs. W. James. The group exhibited fine cultivation, and the three-year old plants of Cecilia, carried forty to fifty blooms each.

Messrs. R. H. Bath, Ltd., The Floral Farms, Wisbech, exhibited a group of Carnations in pots, showing a considerable number of varieties.

Messrs. W. Cutbush & Sons, Highgate, London, and Barnet, Herts, exhibited a magnificent group of plants in their accustomed position in a corner of the Orchid tent. The group consisted for the most part of splendid plants of all the best varieties of Souvenir de la Malmaison, and other Carnations; but it also included smaller groups of yellow Arums, Roses, standard Wistarias, &c.

Arthur Wilson, Esq., Tranby Croft, Hull (gr., Mr. J. P. Leadbetter), showed a corner group of Souvenir de la Malmaison Carnation, remarkable for the dwarf habit of the plants, and large size of the flowers.

Messrs. Hugh Low & Co., Bush Hill Park Nurseries, London, N., had a pretty group of dwarf plants of the Souvenir de la Malmaison type, in numerous choice varieties.

Messrs. Thos. S. Ware (1902), Ltd., Feltham, Middlesex, had a little ground-group of Carnations, composed of well grown, freely bloomed plants of choice varieties.

BEGONIAS.

Messrs Blackmore & Langdon, Twerton Hill Nurseries, Bath, though the youngest in the competing firms, had the honour of exhibiting the best collection of tuberous rooting Begonias. So large in size and effective in colour were the varieties shown, that a lady in passing was overheard to remark, "I don't like those things a bit now, they have got them so large." Her companion (also a lady), added, "and vulgar." However, this was not the popular opinion, and a number of the best varieties are honoured by appearing under "Awards." In addition to those, mention might be made of Professor Lancian, cherry-red; Frilled Beauty; Mrs. Arthur Hall, striking orange-red; Golden Empress; and Amy Peters, pure rose colour, all extremely good. Messrs. Blackmore & Langdon did not exhibit single varieties.

Messrs. John Laing & Sons, Forest Hill Nurseries, London, S.E., exhibited a group of Begonias, which included an extensive number of choice varieties, one of which gained an Award of Merit. Another good one was Lady Esther Smith, white centre, becoming deep red at the margins.

Messrs. Thos. S. Ware (1902), Ltd., showed Begonias well, and grouped the colours together so that there was sufficient of a kind for the eye to rest upon. Golden Queen of England, Miss Jessie Cooper, white with shade of green; Mrs. Andrew Tweedie, pale lemon colour; Miss Mary Pope, pure white; Lady Dudley, write flaked with red, with fimbriated margins; Prince Edward, rose-pink, having white centre and white spotting on the petals, were some of the most interesting in a large and beautiful exhibit.

Messrs. B. R. Davis & Sons, Yeovil Nurseries, Somerset, had double and single flowered Begonias of their usual good strain, but hardly equal in condition to the excellent exhibit the firm had at Shrewsbury last August. A variety named Mrs. Moger, obtained an Award of Merit.

Mr. Jno. R. Box, West Wickham and Croydon, had a group of Begonias, in which double and single varieties rivalled with each in beauty and attractiveness; and further groups were shewn by Messrs. H. Cannell & Sons, Swanley; Messrs. J. Peed & Sons, West Norwood; and Mr. H. J. Jones, Ryecroft Nursery, Hither-green, Lewisham.

CLEMATIS.

Messrs. Richard Smith & Co., nurserymen, Worcester, had a collection of Clematis, in the training of which they had broken away from the old balloon wire shapes to which we got accustomed in the past; at the back of their plants they had Bamboos and Crimson Rambler Rose, and much taste was shown in the arrangement. The leading varieties were Mrs. G. Jackman, Enchantress, Belle of Woking, purpurea elegans, Venus, Victrix, Sensation, Excelsior, &c. Some flowering and foliaged plants were also employed to give effect to the display.

Messrs. Geo. Jackman & Son, nurserymen, Woking, had a superb collection; they also had adopted a more modern method of training, and they had very finely developed blooms indeed, chief among them Fairy Queen, a handsomely marked pale variety; King Edward VII., Grand Duchess, viticella, Syren, Ville de Lyon, both richly coloured forms; Lucie Lemoine, Belle of Woking, Mrs. Hope, &c.

HARDY AND ALPINE PLANTS.

As usual, this department was quite a feature of the exhibition, not merely the usual exhibitors coming up in their strength, but new ones were added on this occasion. We should point as worth specially noticing such groups as those shown by Messrs. Jackman of Woking, Messrs. Wallace, Colchester, Mr. Perry, Winchmore Hill, and Messrs. Backhouse. In all of these the plants were not merely arranged, but in their natural grouping gave the visitor a capital idea of how to employ them in the garden. This is a step in the right direction, and should not be lost sight of.

We take the exhibits as most convenient to ourselves, and find the Messrs. Barr & Sons in their old place, with a large collection of good things. Many choice alpines included several good Achilleas, and a variety of the dwarf Phloxes, together with Saxifrages of the choicer sections; many Sedums and Alpine Poppies, and the like. Hardy Cypripediums were noticeable, but were rather overpowered by adjoining things. In the bolder section we could not but notice the beautiful lot of Spanish Irises, of early Gladioli, and other such plants; while in another set the late Tulips formed a most admirable group alone. Perhaps one of the most striking features was Primula japonica, and with such welcome things as Gentiana verna, Aquilegia Stuarti, Viola pedata, V. p. bicolor, made up a fine exhibit.

Messrs. Jackman & Sons, Woking, surpassed themselves upon this occasion, not only in good things, but in instructive arrangement. Their colony of hardy Cypripediums was finely done, the plants superbly flowered, and consisting of all the best species. C. spectabile album was in this group, and so too the rare montanum, white; and the richly tinted macranthum. Incarvillea grandiflora, I. Delavayi, Trillium stylosum, the pretty Œnothera ovata, with Ramondias in plenty, and the rare Conandron ramondioides, were also among a numerous lot of good things.

Mr. H. C. Pulham, Elsenham, Essex, had a small group of alpines, in which Trilliums, Edelweiss, alpine Dianthus, with many of the alpine Anemones were seen; Iberis superba, was also a good thing in this exhibit.

Messrs. Paul & Son, Old Nurseries, Cheshunt, had small alpines in boxes, such as Phloxes, Saxifrages, Saponarias, Aubrietias, Erigerons, and such like plants in flower; the plants being grouped among larger cut flowers.

Mr. Childs, Acocks Green, Birmingham, showed some good hardy things, in which Campanula thyrsoidea was an exceptional item, some fine inflorescences being shown on a single specimen; the hardy Cypripedes, Cobweb Houseleeks, Redgersia podophylla, and such like, were also in good character.

Mr. G. Reuthe, Keston, Kent, had a pretty group of rare plants. Achillea Huteri, Geum montanum, Anemone sulphurea, Pinguicula grandiflora, Iris verna, very charming; I. Suziana, and the exceedingly rare Jankea Heldreichi, a large mass, though not in flower.

Messrs. Backhouse & Sons, York, contributed an alpine garden in miniature, showing a bit of alpine pasture that was very intelligently conceived. Rocks abounded, with hill and slope, and pool-like depressions, in which Pitcher plants and generally the moisture-loving things were seen to advantage. Large numbers of Saxifrages, of alpine Primulas, such as P. sikkimensis, with Ramondias and the like, were all finely arranged. Large pans of Cypripediums, and tall graceful Bamboos only added beauty to a scene quite beautiful, with not a little natural charm to boot.

Messrs. R. Smith & Co., Worcester, showed many of the more vigorous, hardy perennials, as Pæonies, Irises, Asphodels, Pyrethrums, Columbines, and kindred things.

Messrs. Storrie & Storrie, Dundee, N.B., had their usual exhibit of yellow Auriculas, all very fine, and in good flower. Many named kinds were also in the group.

Messrs. Carter & Co., Holborn, arranged a small rockery with the dwarf alpines, Sedums, Saxifrages, Phloxes, Globe Flowers, and similar things.

Messrs. R. J. Farrer, Clapham, Lancaster, had not a few choice plants: the lovely Eritrichium nanum, Tulipa linifolia, a 3-in. high plant with scarlet flowers; Phyteuma comosum, Dianthus alpinus, D. neglectus, the dwarf Campanula alpina, with its nodding pale blue bells.

Mr. W. J. Godfrey, Exmouth, Devon, contributed specimens of his strain of Oriental Poppies, many being of pink shades, and others of salmony hue and shades akin. These were obviously a good lot, and in the border would be better appreciated than as cut blooms.

Messrs. T. S. Ware, Ltd., Feltham, showed a big group of plants, including Pitcher plants, Irises of several sections, including I. tenax; Ourisia, very fine; Trilliums, Incarvilleas, Trollius, a host of hardy Cacti and allied things, the lovely Delphinium Belladonna, with alpines and plants of low stature galore.

Mr. M. Prichard, Christchurch, Hants, also had a strong group of excellent plants, such as Pyrethrums, Poppies (one named Parkmania, very intense in colour), some alpine Anemones, Aster alpinus albus, with Eremurus, and the blue and white forms of Hyacinthus amethystinus, to say nothing of a host of others.

Mr. Amos Perry, Winchmore Hill, set up a central group of aquaria, in which fish and other creatures were seen in company with miniature aquatic plants and the like; small marsh plants were grouped around. Of special value we noted Pinguicula longifolia, light blue; P. grandiflora, deep violet; Nuphar Kalmianum, Sundews, &c. Of showier things there was a great display of colour; Trollius, Irises, Poppies, Eremurus, Primula japonica, and a large lot besides.

Messrs. Wallace & Co., Colchester, had an exhibit that would provide interest for a long inspection. Ixias and Sparaxis, Brodiæas, Camassias such as C. Leichtlini atro violacea, the latter a grand plant; hardy Cypripedes, Irises of the Cushion and Regalia sections; a feast of Lilies from the dwarf rubellum to the tewerieg, apricot-coloured excelsum; Calochorti and such-like, early Gladioli, very charming; new hybrid Dodecatheons in variety, with many other beautiful flowers far too numerous to give in detail.

The Guildford Hardy Plant Nursery (Mr. Upton, proprietor), had a very choice lot of probably some 200 species or thereabouts. It is impossible to name even a tithe of this large, interesting lot, which comprising the choicest of the alpines, afforded material for inspection for a long time. The arrangement was rich in genera, and the plants were good examples of their kind.

Messrs. J. Cheal & Sons, Crawley, also showed a rockery of alpine things; a similar exhibit coming from Mr. Geo. Bunyard. In both instances the usual free-flowering plants were adopted.

The Misses Hopkins, Mere, Knutsford, had a small group of hardy plants, in which the pink Daisy Alice was among the most conspicuous.

CACTACEOUS PLANTS.

A very fine collection of Cactaceous plants from Messrs. H. Cannell & Sons, included a large number of species in excellent condition. Those in flower attracted most attention, as Mamillaria Nicholsoni and the dwarf growing Mamillaria pusilla, covered with inconspicuous flowers and showy red coloured fruits; Euphorbia coerulescens, also in flower, was a good plant, rather more than 3 feet high. A smaller group of the white flowered Phyllocactus Piersdorffii, bearing an abundance of bloom, was much admired.

Mr. R. Anker, Addison Nursery, Napier Road, Kensington, W., showed a collection of Cacti in the open

air, from tiny plants in thumbs to specimens of considerable size; several were in flower.

MISCELLANEOUS PLANTS.

Mr. W. J. GODFREY, Exmouth Nurseries, Devon, exhibited some choice varieties of decorative Pelargoniums: Exmouth Queen, Godfrey's Pride, Pauline, and Martha Bouchier, all having a good habit of growth, and flowering freely.

Messrs. H. CANNELL & SONS, Swanley, Kent, made, as usual, a glorious exhibit of Cannas, of which there were fifty lovely varieties with large and brilliantly-coloured flowers.

Some excellent plants of herbaceous Calceolarias were exhibited by A. C. HARMSWORTH, Esq., Sutton Place, Guildford (gr., Mr. Joseph Goatley). There were fifteen plants, some of them 3 feet across, and well flowered.

Messrs. WALSHAW & SON, Scarborough, exhibited a group of plants of a yellow flowered variety of Chrysanthemum frutescens, named "Golden Sun," mentioned in our last issue.

Mr. H. J. JONES, Ryecroft Nurseries, Hither Green, Lewisham, exhibited a nice collection of Ivy-leaved Pelargoniums in flower.

Messrs. W. BULL & SONS, King's Road Nursery, Chelsea, exhibited again the remarkable white flowering Stock described in our pages last week, and which we illustrate in the present issue (p. 341); also a plant of Hydrangea Mariesii var. Veitchi.

Primula obconica hybrida grandiflora, shown by Lord BRAYBROOKE, Audley End, Saffron Walden (gr., Mr. J. Vert), appeared to be a good selection of P. obconica, with unusually rich purple flowers; there was considerable variation, however, in tint.

EXHIBITS OUT-OF-DOORS.

Among the more prominent exhibits, Mr. JOHN RUSSELL, Richmond, exhibited a group of choice trees and shrubs, including a beautifully variegated Elm, Ulmus latifolia alba-punctata, also Dimorphanthus mandschurica fol. argenteo-marginatis, and a great variety of other species, including Japanese Acers.

Messrs. FISHER, SON & SIBRAY, Ltd., Handsworth, Sheffield, exhibited varieties of Quercus, such as the giant-leaved conferta, the lovely Golden Concordia, argentea, and longifolia, all uncommon varieties. The bush forms of Ivies, included arborea amurensis, himalaica and rhomboidea, all very distinct; Cornus Spathii and elegantissima. Japanese Maples, including japonicum aureum, in very fine plants; also vitæfolium, very rare cratægifolium; reticulatum, very fine; magnificum and plants of Polymorphum atropurpureum. There were specimens of Larix leptolepis, Weigela Looymansii aurea, Betula purpurea, Alnus glutinosa aurea, Aria himalaica, Rubus australis, a rare plant; and Cytisus handsworthensis, a production of the firm; Dimorphanthus mandshuricus argenteo marginata, a noble variegated plant, was shown well.

Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, N., again exhibited an extensive collection of clipped trees, the shapes being fantastic enough to please the greatest admirer of such whimsicalities.

Messrs. THOS. CRIPPS & SON, Tunbridge Wells Nurseries, Kent, exhibited Japanese Acers, and an excellent selection of choice trees and shrubs.

Messrs. BARR & SONS, King Street, Covent Garden, London, had a collection of pigmy trees from Japan, in a canvas-covered room provided by themselves out of-doors; and Messrs. J. CARTER & Co., High Holborn, London, had a similar collection, arranged also in their own structure.

Messrs. JAS. VEITCH & SONS, King's Road, Chelsea, had Conifers in tubs dotted about the lawn, also Eremurus in flower in tubs, and tree Pæonies in pots, &c.

Messrs. SANDER & SONS, St. Albans, exhibited specimen Palms and Draccenas, also their new Retinospora Sauderi.

A very pretty bed was one planted by Messrs. STORRIE & STORRIE, Dundee. It contained plants of their celebrated variegated Kales over a groundwork of Bunch-Primroses and Auriculas. The effect was good.

Awards by the Floral Committee.

Richardia hybrida Solfatara.—In form the flowers of this variety are not unlike those of R. Elliotiana, but they are sulphur coloured, and have a dark purple blotch at the base. The leaves are thick, and have a curiously velvet-like appearance, and are splashed with white blotches. Shown by Mr. G. BORNEMAN, Blankenburg, Harz, Germany (Award of Merit).

Phyllocactus "Deutsche Kaiserin" (German Empress).—This is a pretty pink coloured variety, shown by Mr. HEINRICH KOHLMANNSLEHNER, Britz, Berlin. The petals reflex considerably, and the general effect is distinct. The variety is evidently most free flowering (Award of Merit).

Begonia Lady Howe.—A purely white, single-flowered variety, with prettily fimbriated margins. Shown by Messrs. JOHN LAING & SONS (Award of Merit).

Begonia Mrs. W. P. Neal.—An extremely large and beautiful double flower, white, or very faintly blush, the exterior of the opening blossoms salmon pink. Good Camellia form, and extra fine petals. Shown by Messrs. BLACKMORE & LANGDON (Award of Merit).

B. Hon. Lady Neeld.—A double flower of Camellia form, of rich rose colour. Shown by Messrs. BLACKMORE & LANGDON.

B. Sir Thomas Lipton.—A rather loosely formed double flower of bright red colour, nearly scarlet. Shown by Messrs. BLACKMORE & LANGDON (Award of Merit).

B. Mrs. Portman Dalton.—A distinct double flower, opens like a huge Rose, with very wide petals, and beautiful pink shade of colour. Shown by Messrs. BLACKMORE & LANGDON (Award of Merit).

B. Mrs. Moger.—A fine double flower, of rich salmon-rose colour, and extra-wide petals. Shown by Messrs. B. R. DAVIS & SONS, and Messrs. BLACKMORE & LANGDON (Award of Merit).

Cordyline (Dracæna) Père Charon.—A first-rate red-leaved Dracæna, suitable for large vases, being most effective in good-sized specimens. Shown by M. DRAPS DOM, Brussels (Award of Merit).

Genm Heldreichi superbum.—This is, without doubt, one of the most free and showy of the orange coloured genus. It is not new, and has been many times exhibited. The flowers are of good form, deep orange in colour, and about 1½ in. across. Exhibited by Mr. AMOS PERRY, Winchmore Hill (Award of Merit).

Ficus pandurata.—Figured and described in *Gardeners' Chronicle*, May 2, 1903. Shown by Messrs. SANDER & SON (First-class Certificate).

Rhododendron (Azalea) mollis "Florodora."—An exquisite variety, of orange shade of yellow, with deeper markings on the upper segment. From Messrs. R. & G. CUTHBERT (Award of Merit).

Polypodium Knightæ, figured and described in *Gard Chron.*, April 18, 1903. Shown by Messrs. SANDER & SONS (First-class Certificate).

Rose (multiflora) "Waltham Rambler."—This is a delightful pink flowering Rose of the multiflora section. The trusses of flower are enormous, and their effect charming. From Messrs. W. PAUL & SON, Waltham Cross Nurseries, Herts (Award of Merit).

Rose (Polyantha) Blush Rambler.—A good companion for Crimson Rambler; colour beautiful shade of pink. The flowers are larger, and fewer are produced in a truss than in Messrs. Paul's variety of multiflora. Shown by Messrs. B. R. CANT & SONS (Award of Merit).

Rose (Tea) Queen of Sweden and Norway.—A pretty Tea Rose, having good petals. In colour it is white, tinted with broozy-yellow. Shown by Messrs. PAUL & SONS, Cheshunt (Award of Merit).

Selaginella Watsoniana.—Figured and described in *Gardeners' Chronicle*, April 18, 1903. Shown by Messrs. SANDER & SONS (Award of Merit).

FRUITS AND VEGETABLES.

Of fruit-trees the sole exhibitors were Messrs. RIVERS & SONS, of Sawbridgeworth, whose collection was placed at the remote end of the centre of the large tent. Prominent were several well fruited trees in pots of a new mid-season Peach, Peregrine, which, oddly enough, is a seedling from Spenser Nectarine. The fruits are richly coloured and highly flavoured; Early York Peach, Dryden, and Early Rivers' Nectarines; Early Prolific Plum and May Duke Cherry were also well represented in the collection.

A very handsomely arranged collection of fruit was staged by Mr. W. L. Bastin, gr. to Sir A. HENDERSON, M.P., Buscot Park, Berks. The back dishes were elevated on wire stands, and Asparagus plumosus was effectively used decoratively. There were twenty two dishes, amongst which were fine fruits of Blenheim Orange, Best-of-All, Buscot Park Hero, and British Queen Melons; Hale's Early and Alexander Peaches; Cardinal, very fine, Lord Napier and Early Rivers' Nectarines; Bigarreau Napoleon, and May Duke Cherries; Royal Sovereign Strawberries, and capital Brown Turkey Figs.

From Messrs. LAXTON BROS., Bedford, came two dozen pot plants of their fine new Strawberry The Laxton, each carrying from twelve to fifteen fruits, and two baskets of fine fruit, having sixty in each, richly coloured.

Mr. C. Beckett, gr. to Sir W. C. PEARCE, Chilton Lodge, Hungerford, put up a large collection. At the back, arranged on boards, were nine bunches of Foster's Seedling, and twelve of Black Hamburgh Grapes; with, on a small board, two of Gros Maroc. Prominent were two large baskets, each containing 100 fine fruits of Royal Sovereign Strawberry, and elsewhere Vicomtesse Héricart du Thury was seen. There were numerous fruits of Hale's Early Peach, also smaller quantities of Waterloo and Alexander; with Nectarines Cardinal and Early Rivers, and good Brown Turkey Figs. There were also twenty-two Melons, Ringleader, Ne Plus Ultra, Eureka, Countess, Hero of Lockinge, and Best-of-All, being well represented.

Messrs. G. BUNYARD & Co., Maidstone, had a fine lot of Apples, sixty-five dishes, generally well kept. The dishes or baskets ranged from five to twenty fruits. Of the finest were Annie Elisabeth, Colville Orange, Ontario, Betty Geesoo, Wadhurst Pippin, Bowhill Pippin, Murfett's Seedling, Belle Pontoise, Prince Albert, Wagener, Bramley Seedling, and Sturmer Pippin.

From the HORTICULTURAL COLLEGE, Swanley, were three good fruits of College Favourite Melon. Mr. J. VERT, Audley End Gardens, Saffron Walden, showed an unnamed Melon; Mr. W. Beale, gr. to E. A. HAMURO, Esq., Hayes Place, Kent, had a handsome white-flesh Melon, which was thought to be too much like Hero of Lockinge.

Mr. S. MORTIMER, Farnham, Surrey, had Tomatos Eclipse, Winter Beauty, and Princess of Wales; Tomatos in boxes, also dishes of them, Magoum Bonum, Excelsior, Dessert, and others; and very long, handsome Cucumbers, especially Improved Telegraph, Success, Every Day, Lockie's Perfection, and a long, handsome fruited variety, named Unique.

Messrs. H. CANNELL & SONS set up in boxes, and carrying heavy crops, flat-trained Peas, English Wonder, British Empire (very green), Dwarf Mammoth, and Duke of Norfolk; fronting these were capital Defiance Cabbages, Giant White Lettuces, various early Carrots, good Asparagus; Field Marshal, The Factor, Early Perfection, and other Potatos; Kidney Beans, Cucumbers, Radishes, and other good produce.

Messrs. JAS. CARTER & Co., High Holborn, had Blenheim Orange Melons, Royal Osborne Cucumbers, Duke of York Peas, Canadian Wonder Beans, various white and green Marrows, Cauliflowers, Broccoli, Potatos—in all, twenty-five baskets and dishes.

From Mr. W. GODFREY and Mr. A. J. HARWOOD, Colchester, came in one case four bundles, and the other five bundles of very fine Asparagus.

Mr. H. D. MONTMORENCY, Carrick Mines, Dublin, had three varieties of young Potatos, Puritan, Ashleaf Kidney, and The Scout.

A remarkable exhibit was made in a separate tent by Messrs. SUTTON & SONS, of Reading. Vegetables formed artistic displays at either end. In one case Cucumbers in pots, heavily fruited, trained flatwise overhead, formed a singular feature; these were Every Day, Matchless, Peerless, and Satisfaction. Tomato-plants in pots, full of fruit, red and yellow, formed the background, and in front, artistically grouped, were baskets and dishes of Tomatos in great variety, very fine Peas in bulk; numerous Potatos, very fine samples, also some growing in boxes; and numerous fine cut Cucumbers, all of great excellence. At the other end, very heavily cropped Tomato-plants formed the ceiling, with Pea-plants well fruited in boxes in the background, the dishes of Melons, Peas, Potatos, Cucumbers, Tomatos, &c., being arranged in front as at the other end. The exhibit was remarkable for effective grouping, as for its high-class excellence.

Mr. M. ADDEY, Brentford, staged pans and baskets of Mushrooms in various stages of growth.

AWARD OF MERIT.

Cucumber "Unique."—This is a product of crossing the varieties Telegraph and British King. The fruits were long, smooth, handsome, very green, and well flavoured. Shown by Mr. S. MORTIMER.

(*For conclusion of Report, see p. 349.*)

Bradbury, Agnew & Co., Ld., Printers, London and Tonbridge.

THE
Gardeners' Chronicle

No. 858.—SATURDAY, JUNE 6, 1903.

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View of the lake in the gardens at Sandringham (Supplement).

HOW TO GROW ORANGES IN FLORIDA.

SOME time since we were favoured by Mr. Herbert Webber with some photographs representing Orange-culture in Florida, one of which we now reproduce (fig. 137, p. 354). Mr. Webber, it will be remembered, was deputed by the United States Government to take part in the Hybridisation Conference held at Chiswick in 1899; and, amongst other things, greatly interested his hearers in the details of the intensely practical way in which our cousins immediately applied the lessons of science to the repair of the injuries to the Orange-groves of Florida caused by a severe "freeze." Mr. Webber has since communicated to the columns of *Country Life in America* an interesting article on the culture of Oranges in Florida, from which, with his permission, we take the following extracts:—

"The first problem of the prospective Orange-grower is to select suitable land for his experiment—for an experiment it is until he has demonstrated by actual experience what he can do. The best Orange-land is that known as "hammock" by the native Floridians. Hammock-land is characterised usually by a heavy growth of live Oak, Bay, Hickory, Magnolia, &c., interspersed with Palmetto, and is usually comparatively low land near lakes or streams. It was on such land that the famous wild Orange-groves were found. While wild Orange-trees were found in various parts of Florida when the State came to be settled in recent years, it is not probable that they are indigenous. They were doubtless introduced by the Spaniards in very early times, and spread by the Indians, who are known to have planted them to some extent. When Orange-growing was taken up commercially, these wild groves were found to be very valuable. The tops of some of the trees situated as regularly as possible were cut off, and good varieties budded in. The trees in the wild groves were very thick, and many of them were dug out and replanted, being later budded with improved varieties.

The other types of land have, as a whole, proved worthless for Orange-growing, and many a hard-earned dollar has been lost by planting on "scrub lands." Scrub land resembles high Pine land when cleared, and many a purchaser has been duped by "land sharks" into investing in scrub grove property only to discover later his error. Scrub land is the pitfall to be avoided by prospective Orange-growers.

Hammock lands, being the most desirable for grove purposes, are naturally the most costly, uncleared land selling at from 50 dollars to 200 dollars per acre, while high Pine and flat woods land can be obtained at from 5 dollars to 50 dollars per acre.

About sixty trees are required to plant an acre of land in grove, and trees budded with the best varieties can in most cases be purchased for from twenty-five to forty cents each. Some over-careful individuals, who think nothing is done right unless they do it themselves, prefer to set seedlings in the grove and bud them themselves with the desired varieties. A case of this kind has come to the knowledge of the writer, where an inexperienced man prepared to bud his own trees in this way. He very carefully read and digested all the agricultural publications giving directions for budding, and then inserted the buds according to the most approved methods. Two years later he called an expert to examine his grove, which presented a very peculiar appearance. Curious to relate, everything had been done right and in order, but the buds had been inserted wrong side up! Printed directions in books cannot be trusted to instruct one in fundamental principles.

The methods of planting young trees differ little from the methods pursued in planting Apple or Peach trees. On ordinary well-drained soils, the trees are planted so that the surface-line of the tree as it grew naturally is placed slightly above the surface of the soil in the grove. In low, moist lands, the trees are planted on mounds, sometimes as high as 2 feet above the original surface. This is done to avoid "wet feet," as the growers express it, as it leads to the fatal malady known as "foot-rot."

The majority of soils in Florida on which Oranges are grown are largely sandy; in very many cases, indeed, they are almost pure sand as deep down as one can go. A chemical analysis of the soil of one good grove known to the writer gave ninety-nine per cent. silica, or pure sand. Oranges grown on such soil are, as the scientist would term them, "sand cultures," and all the essential elements of plant-food must be added artificially. The experienced Florida Orange grower is an expert in the use of commercial fertilisers. He will tell you to use a fertiliser composed of three to four per cent. of nitrogen, five to six per cent. of phosphoric acid, and ten to twelve per cent. or more of potash. He can tell you all about the solubility and insolubility of phosphoric acid fertilisers, the necessity of using large quantities of potash, &c. He recognises that excessive quantities of potash fertilisers tend to produce sweet fruits; and that excessive quantities of nitrogenous fertilisers produce a rapid, vigorous growth of the tree, and a puffy, sour fruit. Some growers have carried the science beyond the range of known physiological laws, and spray their trees at certain seasons of the year with certain chemicals to sweeten the fruit. Such methods are used by few growers, and the writer knows of only one grower who has followed the practice systematically. He regularly sprayed his trees to sweeten the fruit, and was able to guarantee his Oranges sweet. This sweetening of the fruit, however, renders it rather insipid, and while such Oranges give better satisfaction when eaten with cakes and confectionery, as a dessert fruit, they are ordinarily considered too "flat" by connoisseurs, and the practice will probably never become common.

Stable and barnyard manures should be utilised whenever they are made on the farm, from the standpoint of economy. They should not be purchased in preference to commercial fertilisers, however, which have given the best results, as some experienced growers are inclined to do. Experience has shown that they are harmful if used in large quantities, tending to produce thick-skinned, sour fruit, and leading finally to a serious disease known as "dieback." What stable or barnyard manure a grower may produce on his place, should be spread lightly over the grove, only a small portion being given to each tree.

The Orange-picking season in Florida is what harvest time and Apple gathering are in the North. Fancy the broad acres of corn and Wheat in Illinois or Iowa turned into fine old trees 30 feet high, with their branches interlocking and sprinkled here and there with golden Oranges. Fancy the balmy breezes, similar to May in that section of the country, fresh from the ocean or gulf, and laden with the perfume of the millions of fruits. At the picking season all nature partakes of the rich, pleasing aroma of the Orange, till, like Goethe's "Music of the Universe," it becomes well nigh indiscernible, and one must need stop and concentrate his attention to catch its full richness. In the crisp, balmy air of the beautiful southern winter days the pickers may be seen at work with their picking-bags slung over their shoulders, enlivening their work with song and jest, now picking from the ground, the fruit on the lowermost branches; now perched on tall ladders half buried in the rich green foliage, in order to reach the fruit on the uppermost branches. The heaped-up baskets or boxes are hauled in wagons to the packing-house, and dumped into the large bins. Thence they go to the "sizer," where all bruised or faulty fruits are carefully picked out, and the Oranges in two streams, bright on one side and russet on the other, are mechanically assorted according to size, and fall into the respective bins. Here the nimble-fingered packers deftly grasp the tissue-paper wrapper, stamped with the special brand of the grove, quickly twirl it around the fruit and place it as it should be in the box, in order to fill it completely and with a definite number of fruits.

Such, in brief, is a view of the process and pleasure of Orange growing. In addition to this, imagine the satisfaction of life in a country of rolling Pine woods, clear skies and pleasant and healthful climate, and you will realise in a slight degree why my fancy always turns in leisure moments to Orange growing. *Herbert J. Webber.*"

NEW OR NOTEWORTHY PLANTS.

FICUS BARTERI,* *Sprague.* (§ UROSTIGMA.)

THIS handsome Fig-tree was sent to Kew from Southern Nigeria by Mr. J. H. Holland, late Curator of the Botanic Gardens, Old Calabar, and is at present growing in the Palm-house, where it produced Figs in the summer of 1901. Ficus Barteri is a native of S. Nigeria and Lagos, and was first collected by Barter at Onitsa (No. 294), and Eppah (No. 3311), and afterwards by Kalbreyer at Bonny (No. 79). It is variously described as a shrub growing on old trees, and a half-tree from 15 to 25 feet high. The fruits are orange-coloured, and edible. F. Barteri belongs to the series Elasticæ, and is distinguished from all the other species of Ficus by its very long, narrow, acute leaves.

CARALLUMA INVERSA, *N. E. Br.* (*n. sp.*).

This genus seems to be very rich in forms in South Africa, from whence a considerable number are already known, and the present new species adds one more to the list. It is very similar in habit to C. dependens, N. E. Brown, but has the colours of the flowers exactly reversed, and of a totally different coronal structure. It has been sent to Kew by Mr. N. S. Pillans, who discovered it in the Clanwilliam district.

Stems erect, branching, four-angled, angles rounded. with conical, spreading teeth. Flowers developed from the grooves between the angles. Pedicels about $\frac{1}{8}$ in. long, glabrous. Sepals about $\frac{2}{3}$ lin. long, deltoid-ovate, acute. Corolla 6 to 7 lin. in diameter, very deeply five-lobed; tube or united part very shortly funnel-shaped, white at the base, spotted with purple-brown above, and then becoming entirely purple-brown; lobes about $2\frac{1}{2}$ lin. long and 1 to $1\frac{1}{4}$ lin. broad, oblong, shortly acute, dark purple-brown on the basal half, rather deep grass-green on the apical half, not spotted, glabrous on both sides, ciliate from base to apex with long jointed purple hairs. Outer coronal lobes about $\frac{1}{2}$ lin. long, slender, linear, obtuse, purple-brown. Inner coronal-lobes about $\frac{1}{4}$ lin. long, ovate, obtuse, incumbent on the backs of the anthers and scarcely exceeding them in length, with a dorsal subquadrate or oblong projection $\frac{1}{4}$ lin. long, obtuse, emarginate or minutely three-toothed at the apex, purple-brown. *N. E. Brown.*

* *Ficus Barteri.*—Frutex vel arbor parva, 6—25 pedalis, glaberrima, ramulis crassis, exsiccando striatis. Stipulæ lanceolatæ, acuminatæ. Folia petiolata; lamina oblongo lanceolata, longiuscule et acutissime acuminata, basi attenuata, 5½—14 poll. longa, 9—28 lin. lata, coriacea, supra saturate viridis, subtus pallidior, nervo medio subtus prominente, nervis secundariis utriuque 16—18 parallelis, rectis, patulis, tenuibus, tertiariis interjectis subparallelis, subtus venis tenuissime reticulata; petiolus crassiusculus 1—2½ poll. longus, 1½ lin. diametro. Bracteæ basi confluentes, demum caducæ. Receptacula 1—3 (vulgo 2) in foliorum axillis fasciculata, pedunculis æquilongis vel paullo longioribus suffulta, depresso-globosa, tandem 5—6 lin. diametro, viridia, matura aurantiaca (fide Barter), glabra, ostiolo minuto. Bracteolæ ovatæ, longe acuminatæ, flores excedentes. Flores ♂ prope os solitarii vel perpauci. Perigonium 3—4 partitum segmentis ellipticis, obtusis, concavis. Stamen unicum, anthera biloculari, filamentum æquante. Flores ♀: perigonum 3-partitum, ceterum ut in floribus ♂. Ovarium ellipticum, stylo laterali, elongato, filiformi, stigmate obliquo, conspicue papilloso.

FIG. 137.—GROVE OF SWEET ORANGES, FLORIDA. (SEE P. 353.)

HARDY CYPRIPEDIUMS.

(*Continued from p.* 308.)

C. CANDIDUM.—This is a dainty little plant, closely resembling C. montanum, but much smaller. It must be regarded as too fragile for outdoor cultivation, and would succeed in pans in a cold frame or in the alpine-house. The leaves are narrowly lanceolate, slightly hispid, clothing a stem 6 inches high, which bears one to three flowers, less than an inch in diameter, the petals and sepals of which are pale brown. The slipper is very small, generally white, or with a faint pink flush throughout. The roots and crowns are very slender, and they soon decay if afforded much moisture; on the other hand, suffering from drought if not afforded enough. A cool, buoyant atmosphere, fairly moist, such as one would require for Disa grandiflora, a root-run of peat and sphagnum, and water very carefully applied.

C. humile (Salisbury) = *C. acaule*, is the most singular of all the Cypripedia. From the base of a pair of sessile, plicate, ovate leaves, a stem rises to a height of 8 to 10 inches, bearing a nodding flower, the petals and sepals of which are nearly equal in size, not twisted, but slightly undulated, and covered with short, rigid hairs; the colour a dull brownish-purple. They converge on the enormous sachet-like lip, which measures 2 inches in length, and is slit from top to bottom, the edges being sharply flanged, so that the hairy yellowish interior is revealed, forming a lure and kind of trap for insects, which must pass and dislodge the viscid pollen-masses in their efforts to escape by

FIG 138.—CYPRIPEDIUM JAPONICUM. (SEE P. 356.)

way of the column, whilst the rows of stiff hairs that converge inwards force the insect bearing the pollen-masses against the stigmata, thus effecting fertilisation. The whole of the surface of the lip is covered with short hairs. It is coloured a dull purple on the outside, irregularly veined with rosy-purple, the tint varying in different specimens. The inside is rendered attractive to insects by numerous spots of carmine, and highly coloured veining. The conditions suitable for C. calceolus also suit C. humile, but it is better adapted for the rockery proper, and it may be well grown between flat boulders in the manner now considered good for Ramondia. As the plants often rest a year after well flowering once, they should be planted in colonies of several together, in association with rock Ferns that would keep them cool in the summer, and dry in the winter. It likes a soil consisting chiefly of decayed tree-leaves or peat.

C. japonicum.—A remarkable plant now rarely met with in cultivation, and which has not received justice at the hands of collectors, if one may judge from the miserable specimens sent to this country, with mangled roots and badly withered and broken rhizomes. Coloured plates of the plant show remarkable flowers curiously twisted, grotesquely coloured, in size larger than the native species—evidently one of the curiosities of the vegetable world. It is doubtful, however, if the plant is likely to thrive under cultivation, the long, black, centipede-like rhizomes, rarely develop growth after importation. In a wild state, it grows in a tangle of Bamboo-roots, screened from sunshine. (See fig. 138, p. 355.)

C. macranthum.—A fine, bold-flowered species from Siberia and Manchuria, with growth and leaves as in C. calceolus. Each stem bears two or more flowers, the dorsal sepals of which are hooded, an inch wide and long, distended at the top, and plicate at the junction with the ovaries. These, and the narrower and drooping petals, are of a pale purple colour, mottled, with a darker tint on the outside, but lined with rich rosy-purple on the inner surfaces; the lip is nearly spherical, pale rose or pink, with an ingeniously constructed flanged opening, revealing the attractive, brilliant lines of carmine on the inner surface. The outside of the lip is generally duller in tone, and not so clearly marked. The flowers span 4 inches from tip to tip of the petals, and the petals converge on the lip in the early stages of development. Variously coloured forms of this species are known, some self-coloured and a rich purple; but the form here described is the most interesting. C. macranthum resembles C. spectabile in its flowers; it loves shade, a light soil of loam and peat, with plenty of sand, and a fairly dry winter resting season. *G. B. Mallett.*

(To be continued.)

CULTURAL MEMORANDA.

EUPATORIUM ODORATUM.

THIS useful plant produces its creamy-white flowers with great freedom during the months of October, November, and December. For this purpose it should be largely grown, as it is of easy culture, and requires only a brief space of time to become a large specimen.

Cuttings of the young shoots inserted in sandy soil in pots, and then stood in gentle warmth, soon form roots, and when these have become plentiful, the plants should be potted in moderately light loam and leaf-mould and sand, using small 60's, and be returned to the warm frame to get established. Let the plants be stopped a few times in the early stages of growth.

When grown in pots throughout the summer, the plants may be placed in cold frames, or plunged in coal-ashes in the open; but a good plan is to plant them out in an open position, at a distance of 3 feet apart, early in June, and to take them up and repot in the month of September. If the latter method be adopted, the plants must not be neglected in the matter of pinching the points of the shoots. I have practised planting-out for many years, and am well satisfied with the results, the plants affording abundant bloom at the right time, while there is a great saving in labour.

PRIMROSES AND POLYANTHUSES.

Besides being grown extensively for spring bedding, and a certain number for cultivation in pots, some are made use of for filling bare spots unsuited to the growth of other plants. Few plants can be more rapidly increased when once a fair stock of them has been obtained by division. The rooted divisions should be planted on a prepared border, shaded by a wall on the south or west side. Beyond keeping the land clean, and affording water when the soil gets dry, but little attention is required. When raised from seed, some of the colours will be attractive. The seed should be sown in the open, or in a cold frame or shallow boxes—in the latter by preference, more especially for the choicer strains. The seeds should be sown thinly and evenly, and buried not deeper than a ¼ of an inch; when the plants are large enough to be handled readily, prick them off in boxes, and finally transfer to a somewhat shady border. The best may be noted when in flower for propagation by division, and the rest be planted in the wild garden. *H. Markham, gr., Wrotham Park, Barnet.*

IN PRAISE OF OSIER-LAND.

(Concluded from p. 337.)

THE PLANTING PROCESS.

THE cost of planting and cultivating has been estimated at £26 10s. an acre; but in the second year, when crops are marketable, the expenses should not exceed £8, and a smaller sum the third year. Within three years the outlay incurred in preparing and planting a Willow-holt should be recovered. During the winter months truncheons sharpened at one end are thrust into the soil in a slanting direction for a depth of about 9 inches. In Yorkshire these "sets" are generally placed from 14 inches to 18 inches apart, some 19,000 of them being employed to the acre.

AND THE REAPING.

Some of the Osiers are not harvested until after Easter, just before the wands begin to set about "double-skinning," as if they are neglected the ivory whiteness that each wand should possess when peeled is spoilt by a yellow growth. The garth is, after the spring harvest, a mass of black stumps set in squares, and each one represents a truncheon stuck in the ground perhaps fifteen or sixteen years ago, since which time an annual crop has been cut. From black and apparently worthless old stumps, which look as though they had been hacked to death, fresh wands will grow 7 feet or 8 feet tall between spring-time and the end of summer. After standing defoliated through the winter, they are again severed at the stump, perhaps just after the risen sap has burst the leaf-buds into fresh foliage. Supposing you should treat stone-fruit trees in this fashion—strike off all the limbs, and pollard them—they would perish. Elms and other trees will tolerate being "sent down," but, for perhaps a score of years running the Osier will submit with remarkably good grace to being cut down to the ground. Although a perfect martyr to amputation, it never grumbles for a moment.

WHERE THE BEES, BILLY-BITERS, AND BEETLES, COME IN.

Aroused from their winter sleep, the hive and the two Bombus bees come on the scene in March, won by the fragrance and beauty of the cocoon-like Willow blossoms, which supply them with considerable farina. At night-time many early moths, including the Teniocampas, make themselves tipsy on the nectar these blossoms secrete. The black Dutch Willows and the yellow Norfolk's are sometimes spotted in places with the ova of different flies, often largely preserved from their enemies by protective colouring. The chiffchaff, our first summer visitor, makes his appearance here in March; but the most welcome bird of all in Osier-land is "billy-biter," the charming little blue titmouse. "Billy-biter" and comrades will clear off thousands of grubs and rose-pink chrysalides, which at times show some partiality for the yellow Norfolk Osiers. In these we may see near the ground a number of blood-coloured worm cells, the result of a fly thrusting in eggs by means of its ovipositor. The blue-tits move constantly along the Osiers, carefully scrutinising every inch, peering into every possible crack in which an insect could conceal itself, nibbling off the green skins to follow the grubs home to their lairs, and even going over the examined places a second time, as though not quite satisfied that there might, after all, have been some oversight. Perhaps the only pest to do any material damage is the green Willow-beetle (Phratora vitellina), but we may say that its appearance and disappearance are equally phenomenal.

PROFITS.

The average annual yield per acre is not short of 7 tons, and Willow-wands in the green state should realise from £2 10s. to £3 per ton. White-peeled, and particularly if boiled to give them a buff complexion, they ought to command at least £18 per ton. Osiers intended for brown baskets are stored dry; the rest, in order to make them amenable to the cleaver, are "couched" for some time in bundles in the bed of a stream or laid in pits and trenches, where they are watered. By means of a wood cleaver they are afterwards peeled in three strips. Peeling by machinery is certainly not much practiced in the North. *Harwood Brierley.*

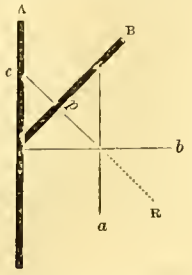
EXCENTRIC WOOD.

YOUR correspondent, "H. J. C.," has raised an interesting question which I do not remember to have seen answered. In speaking of annual rings in timber (*Gardeners' Chronicle*, May 2, p. 277), he describes a large limb of an Elm-tree which grew at an angle of 45° from the trunk. It was 14 inches in diameter, the original centre or pith being 4 inches from the lower surface, and therefore 10 inches from the upper. I would offer the following theory to explain the cause of the greater growth on the upper side. It is well known that stems increase their wood wherever they are subjected to strains, so as to resist any injury through them. This is especially conspicuous in climbing plants. As an example, Darwin describes the climbing petiole of Solanum jasminoides, which, before seizing some object, has three separate fibro-vascular bundles of wood; but after coiling round a twig, the wood increases until it forms a complete cylinder, as in a stem.

If a young tree stand between parallel-horizontal bars, so that it can only be swayed by the wind in one direction backwards and forwards, the wood becomes elliptical, the long axis of the ellipse being parallel with the bars. I would apply this fact to the bough in question. If a beam were fixed to a post, at an angle of 45°, it would require a cross-bar or a chain above it for support (*c*, *p* in the diagram). Nature, however, cannot supply this; consequently the wood of the bough, each annual cylinder being carried up into the tree as well, increases in thickness on the upper

side of the bough instead. The three forces which keep the beam or bough in equilibrium are its weight, the thrust at the base of the beam or bough, and the tension of the chain in the case of the beam; this is represented by the additional strength supplied by the thicker layers of wood on the upper side.

The accompanying diagram will show the distribution of forces:—



Let A be the post or trunk of the tree, B the beam or bough, at 45°; *a* is the weight, *b* the thrust, *c* the tension. This equals the resultant, R, of *a* and *b*. If the bough be too heavy, as by an accumulation of snow, or decay set in to weaken the wood, the bough snaps off at a point, *p*, where *c* R cross the bough, which thus leaves a snag behind. The tension is now unequal to the resultant.

I have in my possession a section of an Elm-bough, in which is a mahogany pulley, so completely imbedded that there is no sign whatever of its presence being discoverable from without. The wood is very excentric, but the thicker side, i.e., measured from the pith, is that which covers the pulley.

Presuming the pulley was fixed on the underside of the bough, as nothing is known of its history, a similar interpretation may be offered. For if a beam be fixed to a post exactly horizontally, it must be supported by a cross-bar, which may be either above or below it; but if it be at all inclined downwards, the cross-bar must be below it, as consequently nature now puts on the additional thickness on the under side of the bough.

I shall be glad to know of any other instances of boughs with excentric wood, and what has been observed as to the position of the thicker side, and the inclination of the bough. *George Henslow, 80, Holland Park, London, W.*

POA ANNUA AS A LAWN-GRASS.

THIS grass is not cultivated in England as far as I know, but my experience is that it makes a most admirable turf for a lawn. When I came to Holland Park, in 1898, I turfed the whole of the lawn from a hay-field in Ealing, in which, of course, Poa annua was practically non-existent; but certain other plants were present, notably Yarrow, as the field happened to be on gravel, and "poor." I found here Poa annua rather abundant in the borders, which had been neglected and uncultivated for seven years previously. The seed soon found its way into the turf. After five years the whole of the lawn, measuring some 6,000 square feet, consists practically of nothing but Poa annua.

It is interesting to watch its progress, and see how it drives out everything before it. There are two rather steep slopes, on which I allow the grass to grow during the spring and early summer, as they are also filled with Crocuses and Tulips. The slopes were sown with the excellent lawn-grass of Messrs. Carter & Co., but Poa annua has invaded them, and the contest is going on at the present moment, all to the advantage of Poa annua. The perennial grasses stand erect, but Poa annua has a tendency to spread out its foliage, something after the manner of Plantains and Daisies, and this habit, I think, has something to do with its success; but it is the extraordinary fertility, and the great rapidity in seeding, which multiplies the plants many hundredfold in the summer, so that nothing can stand against it. It never grows higher than about 4 or 5 inches if left to itself; but when kept mown, i.e., once a week, it makes a thick, uniform pile, without any admixture of anything else. One thing baffles it, but only temporarily, and that is the minutely-leaved Pearlwort (Sagina apetala). Circular patches of 2 or 3 inches to 7 or 8 inches in diameter stand out like little islands in an ocean of Poa annua, observable by darker colour; but the Poa persists in penetrating the patches all round the circumference, and, I expect, it is only a matter of time when the Pearlwort will disappear. For the first three years the Yarrow was very troublesome, as its creeping stem is so persistent and penetrating, spreading in all directions just under the surface; but by aid of manure in winter, and Poa annua in summer, it has almost entirely vanished. In fact, where it was formerly only too much in evidence, one has now to hunt for it.

The question may now be asked, if it be an annual grass, does the lawn exist during the winter? Most certainly it does. But this is the effect of mowing. Being kept short, though it still goes on flowering and seeding, winter has no effect upon it. It becomes practically a perennial.

With regard to the cause of its extraordinary fertility, this is due to its being an entirely self-fertilising plant. When a "spikelet" is ready, the "flowering glume" and its opposite, called the "pale," separate slightly, like the two strokes of a V. The pistil, with its two feathery stigmas, is at the bottom; the filaments of the three stamens are erect and stiff, bearing the anthers on the top, at their bases, which are then said to be "innate." The height of the stamens is less than that of the glume. The anthers burst by large pores at the top, because the usual longitudinal slit does not extend all the way down; the single ovule is thus readily fertilised. The glume and pale then close up again, while the grain rapidly ripens.

One never sees "versatile" anthers on long, exserted filaments, as are usually observable in other grasses. Now and then empty anthers may be seen outside a closed-up spikelet, but they rapidly fall off. A search through a likely panicle reveals plenty of half-ripe grains, but it is most difficult to catch a floret in the act of pollination.

This little grass, therefore, teaches us three things, though they were well known long age.

First, it proves that Nature "rejoices" in self-fertilisation. I will quote the last paragraph of my paper on "The Self-fertilisation of Plants," written twenty-six years ago:—"So far from there being any necessary injurious or evil effects resulting from the self-fertilisation of plants in a state of Nature, they have proved themselves to be in every way the best fitted to survive in the great struggle for life." (*Trans. Lin. Soc.*, read November 1, 1877.)

Secondly, Poa annua affords a most excellent illustration of the universal "struggle for existence," which is always going on, together with the "survival of the strongest and most prolific."

Thirdly, that the struggle has nothing to do with the origin of any new variety or species; for "natural selection," as herein displayed, is only concerned with "registering" what lives and what succumbs in the struggle; but is itself no "agent" in doing the work. *George Henslow.*

FIG. 139.—SOUTH FRONT OF SANDRINGHAM HOUSE. (SEE P. 360.)

PLANT PORTRAITS.

LILIUM HENRYI.—*Revue Horticole*, May 16.

PEAR BEURRÉ MILLET.—*Bulletins d'Arboriculture*, &c., May.

ROSE, M. E. CORPUS. — *Journal des Roses*, April (Bourbon). Flowers pale rose. To whom the "body" belongs is not clear, for while the plate has M., the text has Madame.

ROSE QUEEN CAROLA, H. T.—*Rosen Zeitung*, May. The result of a cross between Caroline Testout and Viscountess Folkestone.

ON THE CONFINES OF THE ROSE SEASON.

THERE is no flower whose advent is more eagerly expected by the earnest cultivator than that unquestionable queen of the garden, which, in the eloquent language of one of her greatest lovers, the Dean of Rochester, "brooks no rival near her throne." Notwithstanding the noble affluence of Apple-blossom, of Lily of the Valley, Darwin Tulips, late Narcissi, and Victoria Myosotis, we yearn for the Rose; and her gracious reign is not far away. Nevertheless, her powers are somewhat limited till she has recovered something more akin to her normal strength. They have been, in many conspicuous instances, considerably weakened during last winter by an unusually severe visitation of frost, accompanied by a raging and devastating east wind. I have, consequently, not been surprised to find that several of my Tea Roses which had not much protection, such, for example, as venerable specimens of Catherine Mermet, Madame de Watteville (which I do not regard as a hardy variety, seeing that in my own garden it has gradually disappeared before the breath of winter), Comtesse de Nadaillac, and even the vigorous Souvenir d'un Ami, have "gone to the wall." Even Souvenir de S. A. Prince, a Rose invaluable for the adornment of the Rosary, has, for the first time within the range of my experience, suffered very greatly; and I question if it will ever be in the future what it has been in the past. Maréchal Niel, grown on a greatly sheltered south wall, has been very seriously affected, and will assuredly accomplish nothing this season in the floral direction. This special Rose, in any case, is by no means well adapted by Nature for garden cultivation. It is an essentially delicate production, and its large and refined blossoms are very easily tarnished by the influence of rain. It should therefore be relegated, in Scotland at least, to the regions of the conservatory. Such valuable climbers as Perle des Jardins, Bouquet d'Or, Madame Pierre Cochet, and Belle Lyonnaise, have fortunately survived; William Allen Richardson and L'Ideal have lost not a few of their high aspiring stems, but owing to their extreme vigour in growing, and protected situations on a warm west wall, they are recovering fast. After a week of almost tropical weather, we are having at present beneficent rains, whose influence will doubtless ere long be apparent in the essential direction of vigorous development. No fault can be found with the appearance of such varieties as Captain Hayward, Duke of Edinburgh, Charles Lefebvre, Crimson Bedder, or the incomparable Margaret Dickson; nor, on the other hand, with such Hybrid Teas as Caroline Testout, La France, Mme. Augustine Guinoisseau, Mme. Pernet Ducher, and Viscountess Folkestone, which may be reckoned as being among the finest Roses in cultivation. I find, however, that such varieties as Papa Gontier and Corallina have during the past winter and spring lost a considerable portion of their valuable flowering wood, and my utmost efforts will hardly induce them to grow and flower with their normal facility.

Of new Roses, the most promising are Frau Karl Druschki, a German variety, of French extraction, with a decidedly Russian name, supposed to be the purest white hybrid perpetual in cultivation; Bellefleur, and Marie Corelli, natives of classical Oxford; and the supremely beautiful Soleil d'Or. Morning Glow has vanished, several months ago, before the too exacting influence of the frost; but Salmonea survives. My only plant of Sunrise, that brilliant introduction of the Uckfield rosarians, is now no more, only its exquisite memory remains; but I have an abiding consolation in Peace, a beautiful pale yellow Tea Rose, introduced by the same raisers (Messrs. A. Piper & Sons), and intended to commemorate the declaration of peace in South Africa, which, in a tranquil, sequestered garden like mine, should find itself in perfect harmony with its surroundings. Like Mrs. B. R. Cant, it is manifestly a variety of vigorous character, and therefore much better adapted than its predecessor, Sunrise, for garden cultivation. *David R. Williamson.*

The Week's Work.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Winter Onions.—The beds should be hoed frequently, and in showery weather a light dressing of some artificial manure should be given them. [The Onion is much benefited by top-dressings of leached and unleached wood-ashes (those of twigs, branches, and green wood by preference), at the rate of 2 tons of the unleached and 4 tons of the leached per acre. Bone-meal at the rate of 5 cwt. per acre should be used with unleached ashes. In the place of wood-ashes, superphosphate at the rate of 20 cwt. and 3 cwt. of sulphate of potash per acre. Nitrate of soda at the rate of 300 lb. per acre is a good dressing, using it at the rate of 75 lb. per acre each time. Poultry droppings in a decayed state may be applied after digging the land in the autumn; this should be dry and friable, not pasty. When top-dressings are given, it is good practice to hoe the land directly afterwards, or to scatter them by means of a fertiliser drill, otherwise the dressings must be broadcasted. ED.] Break off all flower-heads as soon as seen, and use these bulbs first.

Potatos.—Hoe between the rows so as to keep down weeds, and mould up a few days later to protect the young growths, and, if necessary, apply long litter or some other protecting material. When the tops of the main crop Potatos can be observed above the soil, the Dutch-hoe should be plied between the rows; and when the weeds are killed, and the tops have grown to 8 to 10 inches in height, earthing up should be carried out. Land to which animal manures have not been applied before planting should be afforded a good dressing of superphosphate, and a small quantity of kainit and potash, to the extent of 7 lbs. of the first-named and 3 to 4 lbs. of the other substances per square rod, before the earthing up is begun. If winter Greens, Savoys, &c., are to be planted in the furrows, the sooner it is done the better for both crops. The Potato-haulm will need to be laid carefully over several times during the growing season, or the plants between will be sure to become drawn.

Lettuces.—In order to have good Lettuces during hot weather, extra care and attention are required. Trenches should be prepared as for Celery, and filled to within 4 inches of the top. Sow the seed thinly in shallow drills and cover, affording a light dressing of finely-sifted wood-ashes. The seeds require in some gardens to be protected from loss by the birds. Tie up the plants in batches when nearly full grown, and perfectly dry. It is good practice to mulch with half-decayed stable litter in hot weather, and afford water occasionally. Cos varieties for sowing at the present date are the Mammoth White, Little Gem, and Paris White Cos; and of Cabbage varieties, New York and Royal Albert.

Radishes.—The seeds should be sown at this season on a cool border in shallow drills, and be protected from the birds by netting, and well supplied with water. The round and oval-shaped sorts are best for sowing now, the French breakfast varieties being some of the best.

Mustard-and-Cress, Chervil, and Onions for drawing young, may also be sown in a similar situation.

Corn Salad, or Lamb's Lettuce, may be sown from now till September, in a dry and open situation. Sow in drills drawn at 1 foot apart, and when the seedlings are large enough to handle, thin them to 4 inches apart.

Capsicums and Chilies.—These are not well adapted for planting out-of-doors, except in the warmest districts, although they may be planted at the foot of a south wall with a fair chance of the crop ripening. They may always be planted in disused forcing-pits and frames. The Egg-plant requires a similar kind of treatment.

Gourds and Pumpkins should now be planted in the open on heaps of vegetable-refuse or half-decayed manure, and liberally supplied with water in dry weather.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Salvias.—Remove the plants to a cold frame, syringing them twice daily, and close about 3.30 P.M. Pinch out the points occasionally, and repot when necessary. If cuttings be rooted now, especially of S. splendens grandiflora, they will make useful plants in 6-inch pots, and should be fed as soon as they have become established.

Solanums.—Repot young stock, and put it into a cold frame. Syringe the plants with an insecticide if aphis appear. "Cut-backs" that have been repotted and are re-established, may be placed out of doors. Plunge the pots on an old hot bed, or as in our case stand them on a hard bottom, and cover the pots with manure from an old Mushroom-bed, into which they will make roots. Allow a space of 2 feet between each plant. The young plants will be afforded similar treatment after the end of June; they make most serviceable plants in 5-inch pots, but require to be stopped two or three times. Those who plant Solanums in the ground should do so at once.

Chrysanthemums.—We have found that a wine-glass full of petroleum put into 4 gallons of warm water, and syringed over and under the plants once a week will check or cure the "rust" fungus. Examine plants in small pots three or four times a day during bright weather, and do not permit them to suffer from dryness at the roots. Transfer the general stock to the pots in which the plants will flower before they get pot-bound. Use soil of a lumpy nature, consisting of three-parts loam, one part horse-droppings, one part of half-decayed leaf-soil, adding a 7-inch potful of bone-meal, and another of soot, to every four bushels of compost, and enough coarse sand to keep the whole porous, omitting the leaf-soil if the loam is of a light nature. In the latter case firm potting with a rammer is absolutely necessary, it being scarcely possible to make such compost too firm; but if the loam is heavy in texture less ramming of the soil will suffice. Secure the growths to neat stakes, and do not over-water the plants; if the compost is moist at potting time, no water need be applied for a couple of days afterwards. Do not stop the shoots after the middle of the month. Dust with tobacco-powder, or syringe with Quassia extract, to rid the plants of aphis.

FRUITS UNDER GLASS.

By T. H. C.

Cucumbers.—Where possible, keep up a succession of young plants to supplement or take the place of the older plants in bearing. If the aged plants must be kept going, top-dress the beds with rich loam and half-spent stable-dung; remove much of the old bine and leaves, and tie-in young shoots, which stop in the usual manner.

Planting Cucumber Plants.—It is of importance to set out the young plants before they become pot-bound, for if stunted the results are never quite satisfactory. Plant on mounds of rich compost, of which good turfy loam forms the chief part, securing each plant to a stake, and stopping it when it has grown half-way up the trellis-wires. A moist atmosphere, with daily syringings,

and ventilation whenever practicable; a night temperature of 70°, with 10° to 15° more by day, are some of the essentials of successful cultivation. Continue to pinch and regulate the shoots of Cucumbers growing in frames, and avoid overcrowding the bine. Shade the frames in very bright weather; commence to give air early in the day, and shut up early, so as to enclose the solar warmth, when the foliage and surface of the bed, &c., may be syringed with tepid-water. Attend carefully to affording water, and when the plants are fruiting freely, assist them with light, rich top-dressings, and weak liquid-manure.

Tomatos.—Pot-plants early raised, and now bearing fruit, may receive a top-dressing of turfy-loam, to which may be added a small quantity of bone-meal and potash, and frequent applications of weak liquid-manure. Remove the side-shoots, and continue to pollinate the flowers by sharply tapping the trellis-wires at mid-day. Afford free ventilation, and maintain a moderately dry condition of the air of the house, merely moistening the paths in bright weather. The same remarks apply to plants growing in shallow borders, which may receive as a top-dressing a mulch of decayed farmyard manure in addition. Except where forcing is necessary, the temperature may be governed by the weather conditions, excellent results being obtainable at this season without artificial heat, although it may be advantageously employed during cold nights and dull weather. Plant out and sow seed at any time to meet requirements. The variety Acquisition is a most distinct, sturdy grower, and heavy cropper; Frogmore Selected is one of the best.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Planting the Beds.—The main portion of the work of bedding-out being finished, an opportunity will be afforded for setting out a variety of plants in the undressed part of the garden. In many gardens, great numbers of bulbs that have been forced are annually thrown away that might be used to embellish the shrubberies and lawns whose herbage is mown about once or twice a year. One need hardly allude to the value of Daffodils for this purpose, and I would also say that none of the bulbs of the Narcissi family, except perhaps the Paper White, should be thrown away after forcing; for these, if planted now in bold groups, would afford satisfactory results next year. The true Daffodils are perhaps the best for planting, their leaves ripening early, and they are not injured by mowing for the first time late in the present month and in July. Many of the Polyanthus Narcissi and the single-flowered poeticus types can be well ripened if a little more time be allowed for them to mature; and I recommend especially the two fine varieties Grand Monarque and gloriosa as being very vigorous and hardy.

Winter Aconites.—This pretty, tuberous-rooted plant, which flowers earlier in the year than even the Snowdrops, might be planted so as to form sheets of flowers under deciduous trees where the shade is not too dense; but it seems to be a neglected plant in gardens generally. It increases rapidly from seeds, and once planted and established, a display is assured; but more might be done by planting home-grown tubers, and now, while the decaying leaves are still in evidence to assist in tracing the very tiny and easily overlooked tubers, is the best time to plant. No matter how carefully one may seek them, sufficient will be left to restock the ground. Plant them about 1 inch deep and about 6 inches apart, so as to get a good display. Small clumps of the plant give but a poor idea of its beauty.

Azaleas.—Plants which have been forced and afterwards well hardened off, may be grouped in the pleasure-grounds. Undoubtedly the best of these are the Ghent and rustica types. For some years I have planted-out the surplus plants of A. mollis, and the effect has been on the whole good, but the loss this spring of all the flower-buds from frost leads me to caution gardeners against any great extension of this kind of planting. I find that the Ghent Azaleas afford the best effects out-of-doors.

Camellias.—When the new leaves begin to harden and the second growth to cease, the time for planting or replanting has arrived. Planted in the summer, the Camellia has time to become established before winter sets in, and the plant is quite hardy in half-shade if well sheltered by trees and shrubs, or walls.

Hints on Work in General.—The pegging-down of Ivy-leaved Pelargoniums, Verbenas, and other trailers should have constant attention. Remove all flowers from bedding-plants of all kinds if an early display be not sought for, and the plants will be much strengthened. Begonias especially, and many other kinds of bedding-plants, should be afforded a mulch of leaf-soil or cocoa-nut-fibre refuse when planted. Fuchsias, Abutilons, and tall plants generally, should be afforded neat stakes as soon as planted, or they may get injured by wind. Dahlias may be planted on well-manured soil, in positions where they get plenty of sunshine. Directly Dahlias are planted, the destruction of earwigs should be commenced, these being persistent pests.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury

Odontoglossum citrosmum.—This plant will have now passed out of flower, and it may be safely repotted, if repotting be necessary. Let a well-drained pan or basket be chosen, which can be suspended from the roof of the intermediate-house, and let the compost consist of peat fibre two-thirds, and clean sphagnum in a chopped state one-third. The plant shrivels badly after repotting, and great care is necessary till the plant is re-established. When the plant has recovered, and is growing freely, water should be afforded in abundance, and overhead syringing on bright days.

Cypripediums concolor, niveum, bellatulum.—The present is the most suitable season in which to overhaul the above species, the plants making roots freely at this date. Let all the old material be removed if it is in a soured state, and replace it with a mixture of turfy loam and peat, commingled with much finely broken bricks and coarse clean sand. A few living heads of sphagnum may be inserted on the surface. Select a shady part of the warm house for C. concolor and C. niveum; and a similar position for C. bellatulum in the intermediate-house. The last-named species should be often syringed, and afforded water copiously at the root during the summer, and at no season allowed to remain in a dry state for any length of time.

Ada aurantiica.—The plant may be repotted at this season in turfy loam two-fifths, rough tree-leaves two-fifths, and chopped sphagnum one-fifth, making use of these materials in as rough a state as possible, affording plenty of drainage materials, so that the large quantity of water the plant requires during the summer months will not render the materials sour. This species should be afforded a light position in the cool intermediate-house.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

Applying Mulches.—The recent spell of bright sunshine raised the temperature of the top soil by several degrees, and it will be prudent on thin, light, sandy soils, to mulch Peach and Apricot-trees, examining the soil before applying the mulch, and affording water copiously after the mulch has been put on if the soil be dry. Trees that are young, or very vigorous aged ones, should be afforded only strawy litter. To bush and pyramidal Apple and Pear-trees, which by the way have very small crops of fruit this season, it will be advisable not to apply any kind of mulch as yet, this being done later should the summer prove to be hot and dry; but rather keep a friable surface by the use of the hoe, which will prevent the evaporation of moisture from the soil, and consequently assist the growth of the trees.

Outdoor Vines.—Vines trained on warm walls are now making vigorous growth, and the shoots should be stopped at the second or third leaf beyond each bunch that is retained, and make them secure by ties or shreds to the wall or trellis, and not too tightly. If the soil should be dry at the foot of the wall, as is generally the case, water should be afforded copiously, and occasionally weak manure-water or Vine Manure should be applied, employing water at the same time as the dry artificials are put on.

American Blight.—Where this pest of the Apple-tree is present, in however small numbers, means should be taken to destroy it. I find Gishurst Compound-soap, at the rate of 4 oz. dissolved in 1 gallon of warm water, an efficient insecticide to use against this species of aphis, with this precaution, that it must not be applied to the young wood. Apply this to the wood with a half worn-out paint-brush. Quassia extract, soft soap, or any other approved insecticide may be applied in the advised quantities to the young shoots with the garden engine, being washed off after a few hours with clear water. A layer of soil 1 to 2 in. thick beneath the trees should then be shovelled off, and charred, fresh soil, together with a sprinkling of quicklime, taking the place of the removed soil. Let the syringing of all kinds of wall-trees receive frequent attention, occasionally applying weak soapsuds.

THE APIARY.

By Expert.

Seasonable Hints.—The lovely weather we are now having will cause the bees to fill the frames and work up into the sections. They are now beginning to visit the fields of Sainfoin, and in three or four days honey gathering will be in full swing. The hives which are full below should now be supered, and the supers being placed on the frames after the tops have been scraped, so as to let the section crate right down on to the frames; a small piece of carpet should be placed on each side at the front and back, about 2 inches in width, and the crate placed on the carpet, so that the bees cannot get out from beneath the crate, and cannot escape anywhere. It should be packed up at the sides, and end and front as well, if the crate do not touch the front of the hive, in order to prevent draught; and the top of the crate should have three or four coverings of cloth, the first covering being American-cloth, for bees must be kept warm, and no draught allowed to get into the sections. In a good district, where Sainfoin is plentiful, the sections will be filled in a week or ten days if the bees do not swarm; but if they should do so, hive them and turn them back in the evening, watching for the queen as they run in, and take her away. Remember that you cannot have honey and swarms as well.

Swarming.—As soon as the swarm has issued, place it in a skep as soon as possible, the latter being well cleansed, and sprinkled lightly with sugar and beer. If the operator is nervous, let him wear a veil and gloves, with the tops of the gloves tied round the wrist to prevent bees getting up his arms; also let him fasten his trousers, or tuck them into his socks. Place the skep well under the swarm, and give the swarm of bees a quick jerk, and they will fall into the skep; turn them over gently, and place the skep on the top of a clean cloth or sack placed on the ground, putting two small bits of wood or stone under the edge of the skep so as to allow the bees to pass in and out, and cover the top of the skep with Rhubarb-leaves or sacking, to keep out sun-heat. In the evening place the skep on the stand, or if they are wanted for a bar-frame hive, place a board (a pastry-board is a good thing) close to the floor-board of the hive, sloping from the ground up to the hive, and turn the bees quickly out by giving the skep a good knock, and twisting it round in your hands, care being taken not to drop the skep. The entrance to the hive should be opened as wide as possible, and if the bees travel to each side, place a carbolic cloth there, and they will soon clear away to the hive. The carbolic cloth should be soaked in one part of carbolic acid, Calvert's No. 5, to five parts of water, with a little glycerine added. Let the store of water near the hives be kept replenished, and all queen wasps destroyed as soon as observed, each queen destroyed now meaning one nest the less later on.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JUNE 9—Royal Horticultural Society's Committees Meet. Lecture on "Fruit Bottling."
FRIDAY, JUNE 12—Royal Botanic Society: Lecture.
SATURDAY, JUNE 13—Royal Botanic Society Meet.

SALES FOR THE WEEK.

TUESDAY, JUNE 9—
Thornhill Tower Collection of Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.—Fifth Annual Sale of Bedding and Greenhouse Plants, at Mile Ash Nursery, Duffield Road, Derby, by order of Mr. F. Lewis, by Protheroe & Morris, at 12.

WEDNESDAY, JUNE 10—
Palms, Plants, Geraniums, Seeds, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Japanese Dwarf Trees, Palms, and Decorative Plants, at Messrs. Stevens' Rooms.—Vineries, &c., at Nottingham, by T. Neale & Son, at 4 P.M.—Orchids, &c., at 72, Renfield Street, Glasgow, by W. J. & R. Buchanan, at Noon.

THURSDAY, JUNE 11—
Sale of 24,000 Odontoglossum crispum, imported, at 67 & 68, Cheapside, by Protheroe & Morris.—Sale of Nursery Stock, at St. Mary's Nursery, St. Mary's Grove, Richmond, by order of Mr. W. G. Lucas, by Protheroe & Morris, at 12.

FRIDAY, JUNE 12—
Imported and Established Orchids, at 67 & 68, Cheapside, by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick—60.1°.

ACTUAL TEMPERATURES:—
LONDON.—*June* 3 (6 P.M.): Max. 56°; Min. 45°.
June 4 (Noon): 62°; fine; windy, E.
PROVINCES.—*June* 3 (6 P.M.): Max. 62°, Hebrides; Min. 48°, Shetland.

"Journal of the Royal Horticultural Society."

THE April part reached us recently, and forms a bulky volume full of varied interest. It becomes a question whether, for those of us who have no shelf-room to spare, the more ephemeral portions could not be issued separately. It is not very entertaining to read the prize-list of a fruit show held last September, a list containing no information beyond the names of the prize-winners in the several classes. The articles are many of them of great interest and of permanent value, such as Captain HURST's paper on "Wheat Hybrids as Illustrative of MENDEL's law." The general result, if confirmed, is of one great importance, viz., "that in the self-fertilisation of first crosses between constant varieties it is possible to know beforehand exactly what types will be obtained, and further, to calculate the average percentage of each." This is the result arrived at by Prof. SPILLMANN, of Washington, as a result of his experiments and observations in the hybridisation of two species of Triticum, T. vulgare and T. compactum. Prof. SPILLMANN seems to have arrived at his conclusions without ever having heard of MENDEL's work on similar lines. The experiments apply not only to single characters, but to two or three characters taken together. The results, of course, are then much more complex, but the ultimate issue is the same. The rule in these crosses seems to be either the production of plants with three dominant characteristics to one of a recessive or latent character, or a very close approximation to that proportion, or the production of three recessive to one dominant; of course, in the last case, the former recessives become the dominant ones, and *vice versâ*. It is impossible to over-estimate the value of these experiments and inductions to the hybridist of the future. Instead of the haphazard, fortuitous concourse of atoms he has ignorantly dealt with, he will be put into possession of means to select whatever he wants in the first generation, and by the aid of Mendelian principles to calculate the result beforehand. Mr. LYNCH gives a long abstract from the extremely interesting history of the career of the late Sir WILLIAM HOOKER, published in the *Annals of Botany*, in which the origin and development of the Royal Botanic Gardens at Kew are traced. A very useful paper is that of Mr. COTTON on "Wild Plants as a Source of Danger in Gardens," as affording a means for the introduction and dispersion of fungus pests. The importance of careful weeding thus receives additional emphasis. At the same time, the impossibility of wholly shielding our pets from infection is brought home to us. The irrelevant "tail-pieces" still form a feature of the *Journal*; in all cases they are inappropriate, the more so as in most instances no explanation of them is vouchsafed. It is, nevertheless, satisfactory to find this now rich Society is less dependent than formerly on borrowed blocks, as these should only be used sparingly, seeing that the public does not, except in special cases, care to see again what it has already had laid before it in the horticultural press. The commonplace notes are very serviceable, and so also are the "Notes on Recent Research;" but these latter still require to be selected with more discrimination; in many cases they have little or no relation to horticulture, theoretical or practical. The same remark applies to the abstracts from current periodicals. The information given is so extensive and so varied that a copious, well-digested index is a necessity. The time and labour bestowed on the *Journal* must be very great, and it is quite certain that the ordinary guinea Fellow gets far more than he gives. Can this be one secret of the phenomenal increase in the number of the Fellows? In any case, the *Journal* has won for itself a very high place in horticultural literature. Long may it keep it.

SANDRINGHAM.—In our Coronation number, published on June 21 last year, and in our issue for August 16 last, we gave a number of illustrations of the beautiful gardens at Sandringham, from photographs taken by special permission for the *Gardeners' Chronicle*. A further picture of one of the lakes from a different point of view is afforded in the Supplement this week. The Sandringham lakes are not wide expanses of water, but being longer than they are wide, stretch from a point south of the mansion to the front of York Cottage, where a very pretty island adds a charming feature to the already attractive view obtainable from the entrance to the Cottage. The broken, informal margins of the lakes are clothed with plants, and the Weeping Willows, Birches, Ferns, and other plants, cast their shadows in the water with the effect shown in the photograph. The illustration on p. 357 of a portion of the southern front of Sandringham House contains varied flowering plants, in beds, in vases, and against the house itself. This wealth of flowers under the very windows of the mansion is an indication of the personal interest the KING and QUEEN have in their gardens everywhere, and in none more than those at Sandringham, which has been their country home for so many years. Their Majesties' energetic gardener at Sandringham, Mr. THOMAS H. COOK, has a very important charge, and the good condition of every department of the garden is proof of his unremitting care.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will be held on Tuesday next, June 9, in the Drill Hall, Buckingham Gate, Westminster. A lecture on "Fruit Bottling," with a practical demonstration, will be given by Miss EDITH BRADLEY, at 3 o'clock.

—— At a General Meeting of the Society held on Tuesday, May 19, eighty-nine new Fellows were elected, making a total of 768 elected since the beginning of the present year.

—— EXHIBITION OF ROSES AT HOLLAND HOUSE, JUNE 25. The Secretary calls the attention of exhibitors to an accidental omission from the schedule of the following class for garden Roses, which will be called Class 9B. CLASS 9B.—Thirty-six bunches (consisting of not fewer than five trusses of each) of garden Roses, distinct. Including China, Moss, Polyantha, Provence, and other summer-flowering Roses and their hybrids, and all those mentioned in the National Rose Society's catalogue of Garden Roses, and also all Teas and Noisettes not included in the National Rose Society's list of Exhibition Roses, all singles, however, excluded. To be staged in thirty-six glasses or jars not exceeding 3 inches diameter at the top; all stems to reach the water; each variety in a separate glass or jar. Open. First, Silver Cup; Second, Silver-gilt Flora Medal.

—— PHOTOGRAPHING AT THE ROYAL HORTICULTURAL SOCIETY'S MEETINGS.—The editor of *The Gardener* writes regretting that owing to his absence, his approval of the joint action of his colleagues of the Press, was unfortunately delayed. He had, quite independently, come to the determination to avoid the taking of photographs at the Temple and at the Drill Hall. The entire horticultural press, therefore, whilst willing in the future, as in the past, to assist the Society in every way, and to conform to every reasonable regulation, declines to do at the dictation of the Council what, in all probability, it would have gladly done as a matter of courtesy and reciprocal arrangement. We have received from various exhibitors several photographs taken at their own initiative, but of which we are precluded from making use. For ourselves, we may add that we are not in the habit of taking photographs at the Drill Hall, and those which have been taken at the Temple in former years have been procured in the early morning, long before the entry of the judges or of the public.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—As already announced, the anniversary festival of this Institution will take place on June 24 next, at the Hôtel Métropole, when the Earl of WARWICK will preside. Contributions to the Chairman's list are earnestly solicited, and will be gratefully received and acknowledged by the Secretary if sent to the office, at 175, Victoria Street, Westminster.

ABNORMAL GROWTH OF CORYPHA ELATA.—Certain Palms, among them being the various species of Corypha, grow for several years without producing flowers or fruits, they then produce a huge mass of flowers, form their fruits, and die. The same thing occurs with other "monocarpic" plants well known in the West Indies, among them the Agave, where the main plant usually dies after producing its long pole. Some plants of Corypha elata are grown in the Botanic Gardens, Demerara, and Mr. J. F. WABY has recently reported an interesting case of abnormal growth in one of them. In May, 1883, three plants of this Palm, then some two or three years old, were planted in a group. One flowered, fruited, and died in 1901. A second flowered and fruited last year (1902), and is now dropping its ripe fruit, the plant standing gaunt and naked with the panicle of fruits at the top. The stem is at least 50 feet high. The third, instead of pro-

ducing the flowering panicle as the others did, has started into fresh growth, and has, as it were, a young plant at the top about the size of one six or seven years old, with no sign whatever of the flowering panicle. This one has retained the large head of foliage usual at the flowering stage. *The Agricultural News* (*Barbados.*)

ROYAL COUNTIES AGRICULTURAL SOCIETY.—A horticultural exhibition will be held in connection with the above show, under the management of the Southampton Royal Horticultural Society, on Tuesday, Wednesday, Thursday, and Friday, June 9, 10, 11, and 12. Members of the Southampton Royal Horticultural Society visiting the agricultural show will be admitted free to the flower show tent on production of the member's personal ticket. *C. S. Fuidge, Sec., S.R.H.S.*

COTTON-GROWING IN THE WEST INDIES.—The Imperial Department of Agriculture for the West Indies has issued a pamphlet on this subject, detailing the experiences and recommendations of Dr. MORRIS. From this publication we take the following extracts:—

"There is no doubt that the West Indian Colonies are well adapted for the cultivation of Cotton. They formerly grew comparatively large quantities, and in fact a hundred years ago supplied nearly the whole of the Cotton from the New World shipped to Europe. In 1801, 25,000 bales were exported; in 1836, 20,000 bales. Afterwards Cotton was discarded in favour of sugar and other crops, yielding larger profits. There was a slight revival of Cotton planting in the West Indies during the Civil war in America in 1863 to 1865, but since that time Cotton has almost disappeared from our list of exports, the only locality where the cultivation has survived being the small Island of Carriacou —a dependency of Grenada.

It is desirable to repeat that Cotton-growing is not likely to offer the prospect of greater gain or more congenial employment than sugar if the prices of the latter are moderately good. It is only in localities where sugar-growing cannot be carried on at a profit that Cotton should be attempted to be cultivated on a large scale.

Where it is clearly evident that sugar cannot be produced at a profit, the cultivation of Cotton would offer employment to a large section of the community; and if careful attention were devoted to growing the varieties of Cotton best suited to the soil and climate and these happen, as in the case of 'Sea Island' Cotton, to command relatively high prices, the industry would have a reasonable chance of success.

A few of the points in favour of re-establishing a Cotton industry in the West Indies may be mentioned. There are large stretches of cleared land, formerly under cultivation in Sugar-cane, well adapted for the cultivation of Cotton. The soil and climate have, long ago, been proved to be favourable, and the present labour supply, especially in such Islands as Barbados, Montserrat, Antigua, and St. Kitts is likely to be equal to the demand, and available at a lower cost than anywhere in the United States.

The variety of Cotton suitable for cultivation in the West Indies is the 'Sea Island' Cotton. This is a special kind almost identical with Egyptian Cotton, and usually commands the highest price.

It may be added that the planters regard favourably the prospect of at least a partial return to Cotton planting in these Colonies. It will readily fall into line with the estate routine with which they are already familiar, and it will require almost identically the same kind of field preparation as sugar. Irrigation and the use of expensive artificial manures will be unnecessary. If the whole of the Cotton-seed that is produced were converted into meal, and this were consumed by animals, and the resultant manure applied to the land, it is probable that no other fertilisers would be required.

It is also in favour of a Cotton industry that expensive machinery and buildings are not required, and that the crop could be grown and exported within a period of six to eight months from the time of planting. It is probable that a central ginning factory, costing a few hundred pounds, would be capable of dealing with the crop produced on a comparatively large area."

BUD VARIATION AND BUD SELECTION.—It is generally admitted that no two seeds in a pod are absolutely alike, in spite of the popular proverb. The same thing holds good of the buds. Prof. CORBETT, of Washington, has been experimenting on this subject with the practical end in view of endeavouring to ascertain whether in the case of Roses it is better to propagate them from buds taken from the "blind" shoots, or from those which produce flowers. The general conclusion arrived at is, that for purposes of propagation only, it is better and more economical to employ buds from the blind or flowerless shoots; but if the production of flowers be required, then the use of buds taken from the flowering shoots is emphatically recommended. *American Florists' Exchange.*

PATHOLOGICAL PLANT ANATOMY.—From a notice in the *Botanical Gazette* (Chicago) for March, of Pathologische Pflanzenatomie, by ERNST KÜSTER, we extract the following remarks. The meaning is clear, but the language might be improved: "Five descriptive chapters take up the following main divisions of the subject: Restitution, the process of replacing lost parts, is treated here, since the formation of the reparatory tissue, like the formation of many pathological tissues, is connected with an utilisation of energy, which is spared the organism that develops normally. Hypoplasy, the incomplete development of cells or tissue may affect only the size or other features of development, as for example, the amount of differentiation. Metaplasy, by which is designated every progressive change of a cell that is not connected with its abnormal enlargement or division. Hypertrophy, used in the sense that VIRCHOW used it, designates the production of abnormally large cells, which may be single or grouped to form an abnormal tissue or organ. It is to be distinguished from the subject of the following chapter, Hyperplasy, which again in VIRCHOW's meaning, is the abnormal increase in size of tissues or organs caused by an abnormal multiplication of cells. The last two subjects are extensively discussed, the former having the following subdivisions: hypertrophy as a result of suppression of the division of the growing cell where normally division should occur, as a result of etiolation; hyperhydric growth, including the so-called "œdemata," tyloses, gall hypertrophies, e.g., galls due to Erineum and Synchytrium; and multinucleate giant cells, occurring mostly in hyperplastic growths, and forming a transition to that subject. Hyperplasy exhibits itself in two general types; homœoplasy, where the elements of the abnormal tissue are the same as those of the tissue from which it is derived; and heteroplasy, where the elements are in part or all different. The latter contains by far the greatest number of cases. Under it are grouped most calluses, wound cork, wound wood, and the vast majority of galls. The latter are very extensively discussed. Most of the galls caused by parasitic plants come under the heading of Kataplasms [!]; while the highly organised galls, of definite structure and form, mostly of insect origin, are discussed under the heading of Protoplasms."

"THE POPULAR ILLUSTRATED GUIDE TO SOUTH EASTERN AND CHATHAM RAILWAY COAST RESORTS:" By W. T. PERKINS (published by MCCORQUODALE & Co., London, S.E.). This guide is issued by the Managing Committee of the railway, and deals with the varied attractions of the several places. Thus we have chapters devoted to the Golf Links and Natural History Notes, which might with advantage be extended. Few would know, for instance, from these pages what special attractions for the geologist and naturalist Folkestone or Romney Marsh possess; and information concerning the chief towns on the route, arranged in alphabetical order.

THE MAKING OF PANAMA HATS.—The January issue of the Jamaica *Bulletin of the Department of Agriculture* contains an interesting account of the making of "Panama" hats in Ecuador and Colombia. The common fan-shaped Palm is the one used in the manufacture of these hats. Young fronds, very uniform as to size, are cut from the plant, and boiled to a certain stage; they are afterwards hung up to dry, and the fronds separated in a draughty, sunless place. When nearly dry, the fronds are split, to make them uniform in size, and when completely dried the strips curl in at the edges, and then are ready for manufacture. When making a hat of this "straw," four women usually work together, taking from a week to six weeks over the task, in proportion to the standard of excellence required. When finished, the hats are pared smooth, well washed with soap and lime-juice, and left to dry in the shade. A really well-made hat is always costly, since much care and time is expended upon it. To become a good hatter requires a very long training, and often the female children are set to work when only ten years old. Hatters work every day steadily, taking but hurried meals, and continuing work by candle-light, so as to have the hat ready by market day; an hour or two wasted means to them the loss of the market day, and consequently the loss of ready money. The process of boiling the "culls" is an art in itself, as only few people are able to turn out good straw.

PRIMULA SIKKIMENSIS.—MR. ERNST BENARY, of Erfurt, Germany, writes:—"I have at present in my nursery Primula sikkimensis in bloom. I think the species is rather rare. It makes a very handsome umbel of light yellow flowers, and has neat, dark green foliage. What I am particularly struck with, however, is the very fine odour of the bloom, much stronger than I have ever met with among the Primulaceæ. Mr. NICHOLSON, in his *Dictionary*, does not mention this characteristic of the plant."

STERILISATION OF SOIL.—The important subject of sterilising soil by hot water or by steam has as yet scarcely passed the experimental stage, and there is still some difference of opinion concerning the resulting crops among such experts as have tried the operation. Prof. STONE, at a meeting of the Massachusetts Horticultural Society, gave a lecture upon sterilisation of soil, and briefly described the process and its intentions. The object of sterilising soil is to free it from insect and fungus parasites, and from weed seeds, and for this neither the application of chemical substances or fumigation has proved wholly effectual. Freezing or drying the soil is not easily effected under glass, and all the above processes prove costly. By subjecting soil to a temperature of 180° F. for some time, no great expense is involved, and all injurious substances save mildew and other fungi that freely propagate by spores are destroyed, and do not speedily recur even on subsequent exposure to air and water. There is one system of soil sterilisation carried out by means of perforated pipes, so arranged in the soil that complete circulation is effected; another variety is of harrow-form, and is laid on the surface of the earth and completely covered with it. The heat should be maintained for about one hour and a half, when, after the removal of the apparatus, the ground should be covered over for some hours, that it may cool gradually. This method of treating the soil by steam to a distance of a foot or more in depth has proved very effectual, and as the cost of the work has been much reduced lately, there is no reason why it should not be used for whole ranges of glasshouses, and even out-of-doors. The good effects are supposed to last for about five years as regards ordinary plant-enemies, though of course such sterilisation is not absolute, as bacterial flora have been proved to resist a temperature of 212° F. Authorities slightly differ as to the results produced upon crops by heating the soil. Lettuces grown after sterilisation of the earth attain in four and a-half weeks to the average growth observed in six and a-half weeks; they are lighter-coloured, and contain a larger proportion of water; the plants are more tender in habit,

and, in the opinion of some growers, quality is sacrificed to quantity. More prolonged experiments are necessary before decided opinions can be pronounced, but the initial stages being passed, every day should add to our reliable information on the matter.

MR. JOSEPH BENBOW, the gardener in charge of the very interesting collection of plants belonging to the Earl of ILCHESTER, at Abbotsbury, Dorset, is leaving that situation, and is seeking a fresh appointment.

HORTICULTURAL CLUB. — The next house dinner of the Club will be held on Tuesday, June 9, at 6 P.M., at the Hotel Windsor, when Mr. C. T. DRUERY, F.L.S., V.M.H., has promised to read a paper, entitled "Hybridisation *versus* Selection." The house dinners will, as usual, be suspended during the months of July, August, and September. *E. T. Cook, Hon. Sec.*

"CHRYSANTHEMUMS AND THEIR CULTURE."—This is a little pamphlet on the cultivation of Chrysanthemums, by T. JOINSON, who is stated in the preface to be a practical cultivator and exhibitor. The details are explained in a simple, straightforward manner, suitable for amateurs, and are mainly concerned with the growth of bush plants, and plants for grouping. It is published by H. H. BALSHAW, Altrincham. Price 6*d*.

M. HENRY.—We regret to learn from the *Revue Horticole* that this gentleman has resigned his appointment at the Jardin des Plantes in consequence of ill-health. He is succeeded by his former colleague, M. GÉROME.

"NEW ZEALAND AND ITS WEEDS."—In the tenth report of the division of Biology and Pomology which has lately reached us, Mr. T. W. KIRK refers to Senecio jacobea, or Ragwort, which has spread far and wide throughout the colony. It is common enough here, but not in quantities sufficient to make it very objectionable—indeed, its handsome yellow flower-heads are not a little ornamental. Picris echioides, the Ox-tongue, is another European species which has become a pest in New Zealand. They afford interesting examples of the way in which a change of conditions may favour the multiplication of certain plants. We are afraid our New Zealand brethren do not appreciate the interest.

TOMATOS AND APPENDICITIS. — The name appendicitis, now so familiar, is comparatively new. The disease itself was formerly not differentiated from colic or from inflammation generally When its true nature was understood it became a matter of importance to avoid swallowing anything which might lodge in the "appendix" and set up inflammation. Among the possible sources of danger were the seeds of the Tomato. The Americans (the tale comes from the other side of the Atlantic) set to work to produce Tomatos without seeds, and have succeeded ; at the same time they have increased the size of the fruit and the amount of sugar which it contains.

ERITREA.—We have received a copy of Prof. BALDRATI's catalogue of the agricultural products of the Italian colony of Eritrea, comprising a list of alimentary, economic, medicinal, and ornamental plants. Among the latter are mentioned Kalanchoe grandiflora, Crinum yuccæfolium, Hæmanthus abyssinicus, Antholyza abyssinica, Gloriosa abyssinica, and others.

FLORA OF THANET.—A list compiled by Mr. G. M. PITTOCK, M.B., of plants found wild in the Isle of Thanet. The names only are given, and localities are omitted for obvious reasons, but as the Isle contains marked variations in its flora according as the plants grow in the marshes, on the clay cliffs, the chalk downs, or the sea coast, it would have been well to have inserted these particulars. Lepidium Draba should have been included as a colonist or alien, rather than as a native. There is a tradition that it was originally introduced by the soldiers returning from the Walcheren Expedition. The list comprises 565 species.

A SELF-HELP AND BENEVOLENT SOCIETY.—Members of the Bolton and District Horticultural and Chrysanthemum Society have recently formed a new society, having for its objects "the assistance of its members in times of sickness, or when out of employment, and in old age." All benefit members must be domestic gardeners, or be regularly employed by such. A labour bureau will be formed, having for its object the assistance of members when out of employment to new situations. The President is Mr. RICHARD SMITH, and the Secretary Mr. HERBERT MAKIN. The Committee of Management consists of H. Shone, G. Corbett, C. Jones, W. Burgess, J. Wainwright, and J. Hicks. A few extracts from the Rules will afford our readers some idea of the nature of this new venture, which deserves the best wishes of all, for its objects are most praiseworthy—

Entrance Fee shall be 2*s*. 6*d*.—1*s*. to be paid on being proposed, the remainder to be paid within one month. Subscriptions to be 1*s*. per calendar month, payments to be made on the first Saturday in each month; members not to be entitled to any assistance until twelve months after the whole of the entrance fees have been paid. In six months after the formation of the Society the entrance fees to be 2*s*. 6*d*. for members joining under 25 years of age; from 25 to 35 years of age, 5*s*.; from 35 to 40 years of age, 7*s*. 6*d*.; and from 40 to 45 years of age, 10*s*.

Under Gardeners under 18 years of age will be eligible to join the Society on payment of 1*s*. entrance fee, and 1*d*. per month subscriptions. That no person can become a member of this Society (after its promotion) until he has been moved and seconded by two members of the Society, and accepted by a majority of two-thirds of a Committee, or a meeting called for that purpose.

6*d*. per annum out of every member's contributions to go to the Benevolent Fund.

That members be entitled to the following out-of-work pay :—10*s*. per week for the first month, and 5*s*. per week for the second month. Members under 18 years of age will be entitled to 4*s*. per week for the first month, and 2*s*. per week for the second month. All members to be out of employment for two weeks before any grants will be made. The Society will further endeavour to assist its members when out of employment by inserting a series of advertisements in some of the leading papers for him, the Committee to have power to repeat advertisements if they find it necessary.

Honorary Members : Gentlemen paying 5*s*. per annum or upwards shall be constituted Honorary Members of the Society.

In case of sickness, members will be entitled to 10*s*. per week for the first month, and 5*s*. for the second and third months. Members requiring sick pay must produce a certificate from a duly qualified medical practitioner on application for same. Members who have received thirteen weeks' full pay must be clear off the funds of the Society twelve calendar months before again being entitled to full pay.

Members who unfortunately become incapable through old age, infirmity, or other affliction, shall be provided for from the Benevolent Fund in the best possible manner that two-thirds of a full meeting shall decide. It is the earnest desire of the promoters to do the very best they can for such of our unfortunate brethren.

MARBLE HILL, RICHMOND. — This lovely spot on the banks of the Thames, for years an object of great solicitude to the speculative builder, having been acquired as an "open space," and to preserve the beauty of this, almost the sweetest bit of landscape in England, was on Saturday last, at the instance of the London County Council, declared by Lord MONKSWELL open and free to the public for ever. The mansion, as is well known, was built for GEORGE II., and it was in the avenue here that SCOTT's heroine of the *Heart of Midlothian* was introduced to His Majesty to plead the cause of her sister condemned to death. Lady SUFFOLK introduced JEANNIE to the King, and ARGYLE helped in the successful pleadings. Marble Hill promises to become one of the most popular public parks within easy reach of London.

"WORLD'S FAIR BULLETIN."—This is a pamphlet published in the interest of the Louisiana Purchase Exposition, to be held in St. Louis, 1904. Preparations are being made on an extensive scale, special buildings are being erected, and no pains spared to ensure success. "It is believed," says this sanguine publication, "that all the great societies and institutions of learning in the world will be represented, and that the resulting volumes of papers and discussions will be an enduring monument to the Louisiana Purchase Exposition." A horticultural building in connection with the affair is to be built in the shape of a Greek cross, with a centre pavilion 400 ft. square, and two large wings. One wing is to be heated, to serve as a nursery for bedding plants and to protect tender exhibits, and in this growing exotics and forced vegetables and fruits will also be housed. The second wing is for general horticultural exhibits, offices, &c., and the centre pavilion is to contain pomological exhibits.

FARMERS AND THE PHARMACY ACT.—At a meeting of the Cheshire Chamber of Agriculture at Crewe on Monday, the Secretary read a communication suggesting that the Chamber should adopt a petition to Government in favour of the amendment of the Pharmacy Act in the direction of making it lawful for duly licensed agricultural agents and seedsmen to retail poisonous compounds needed by agriculturists in carrying on their business. It was suggested that agriculturists and horticulturists were inconvenienced in getting what they needed, owing to the restrictions placed upon the sale of poisons by the Pharmacy Act of 1868. The Secretary (Mr. C. B. DAVIES) said, that so far as his experience went, he did not think farmers had found any difficulty in getting what they needed on the farms, through the ordinary channels. Mr. MILLINGTON (a large farmer of Middlewick), said he had had no difficulty at all. The Chairman (Mr. H. J. TOLLEMACHE, M.P.) appealed to the farmers present to say whether they had experienced any difficulty in getting what they wanted, and elicited a response that they suffered none. It was decided not to adopt the petition.

FRUIT TREE PLANTING BY THE ROADSIDE.—We are continually met with the objection that the fruit would be stolen, or that it would be worthless, that no one would take care of the trees, and with other excuses for doing nothing. These objections have been traversed over and over again, but perhaps the better way is to continue to cite what is done elsewhere. From the *Revue Horticole*, we learn that in 1902, there was a total of 166,342 fruit trees, principally Apples and Pears, planted along the roadsides in Bavaria, the average cost per tree being 2 fr. 76 c. The annual produce per tree averaged from 14 fr. 32 c. to 3 fr. 70 c., according to locality, or a rate of interest from 6·8 per cent. to 1·7 per cent.

NURSERY IMPORTS AT THE CAPE. — Some few weeks since a departmental order was issued in the official gazette of the Cape of Good Hope Government containing instructions as to the nature and extent of imports of trees, plants, cuttings, &c., for garden, forest, and orchard use. We are indebted to the Agent-General here for the following summary of the "order :"—Under the present regulations, all such articles are allowed to be introduced into the Colony, provided (1) That they do not form part of a Vine ; (2) That the Customs officer charged with their examination finds them free from all disease ; (3) That in case of stone fruit-trees, or other articles the growth or produce thereof, they should be accompanied by a solemn declaration made before a magistrate or Commissioner of Oaths, that they are not grown in the United States of America or in the Dominion of Canada. Such readers as desire to get the contents of the order in full, will find it in the *Board of Trade Journal* for May 7.

A ROYAL BOTHY.

His Majesty the King has shown his interest in matters pertaining to the welfare of his servants, and recently there has been erected in the Royal gardens at Frogmore, as part of the reconstruction of the gardens, a bothy which may be truly said to be a "Royal" bothy. This building, the details of which have had His Majesty's approval, has accommodation for twenty-four unmarried gardeners. It occupies three sides of a square, and is two storeys in height, in the old English style of architecture. On the right of the main entrance, over which there is a handsome clock, there is on the ground floor a dining-room 25 feet by 30 feet, a reading and recreation room 27 feet by 15 feet, and isolation or sick rooms with separate entrance. The latter comprise a bed-room 11 feet by 10½ feet, a sitting-room 16 feet by 15 feet, with large bay window, and a bath-room, lavatory, &c. This suite of rooms, which may be called a small hospital, is entirely cut off from the rest of the building, and is complete in every way. In the left-hand wing of the building is the caretaker's house, which corresponds to the sick-rooms just described, also stores, larder, &c.; and a kitchen 25 feet by 21 feet, with all kitchen requisites, cooking range, &c. A spacious hall and staircase divide the kitchen from the dining-room, but a connection between them is provided by a service passage behind the staircase. The sleeping accommodation for the men is on the upper floor. Each man has a separate bed-room, about 10 feet by 8 feet, ensuring privacy; and there are three larger rooms for the accommodation of the foremen, these measuring about 15 feet by 10 feet. All the rooms open into a wide corridor running round the building. Behind the main staircase is a lavatory 27 feet by 19 feet, with two bath rooms, 9 washing basins, &c., and a boot-brushing room. Underneath the lavatory and the dining-room, covered by a steel and concrete floor, is the stokehole and the boiler-house for the east section of the garden. This is 40 feet long by 19 feet wide, and the stokehole part is about 17 feet high, and well lighted. The entire work has been carried out by Messrs. MacKenzie & Moncur, Ltd., hothouse builders to His Majesty.

The whole of the bothy has been finished in a superior manner, and every care taken to ensure the health and comfort of the men. It is practically fireproof, and a complete system of hot-water heating and hot-water supply is installed throughout the building. All the rooms have been comfortably furnished, and an abundance of books and many pictures have been supplied from Windsor Castle.

The King in thus providing such quarters for his gardeners, has set a good example which might be followed by many noblemen and gentlemen, for certainly some gardeners' bothies are not creditable to their owners.

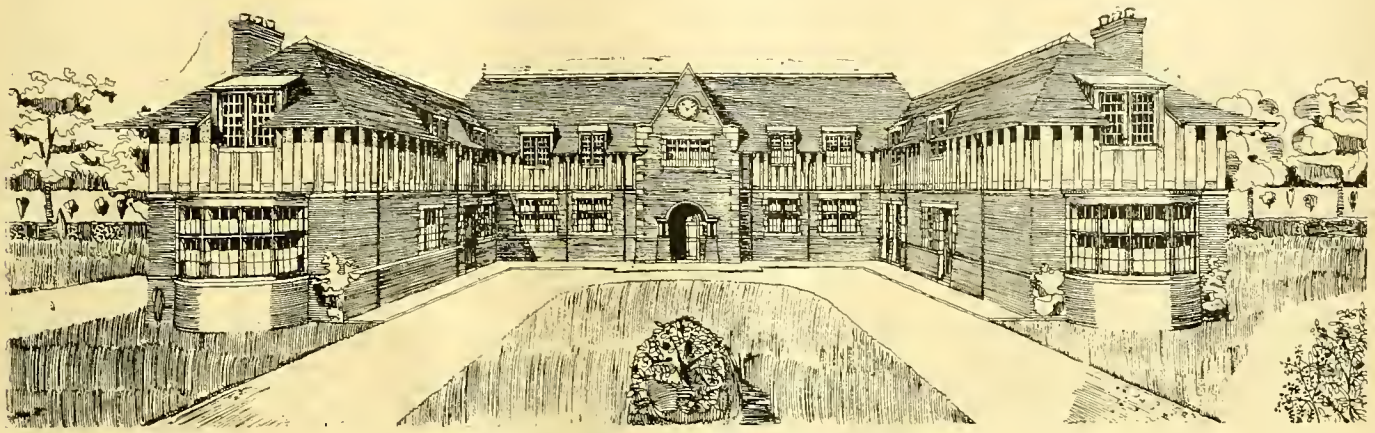


Fig. 140.—Elevation of the new Royal bothy at Frogmore.

Fig. 141.—Plans of the new Royal bothy at Frogmore.

Publications Received.—*The Century Book of Gardening*, Part VII. (George Newnes, Southampton Street, Strand).—*Le Chrysanthème*, April—May. The chief contents are programmes and reports of meetings.—*Archives de l'Institut Botanique de l'Université de Liége*, Vols. II. and III. From Prof. A. Gravis. Contents, Vol. II.: Anatomie Comparée du Chlorophytum elatum et du Tradescantia virginica, by A. Gravis and P. Doneeel; Organes Végétatifs et floraux chez Carludovica plicata, by H. Micheels; and l'Embryon et les plantules dans Renonculacées, by E. Sterckx. Vol. III: Anatomie des Renonculacées; Structure des péricarpes et des Spermodermes, by H. Lunay; and Anatomie des feuilles dans les Renonculacées, by J. Gollart.—*Der Deutsche Gartenrat*, No. 8, Berlin.

HOME CORRESPONDENCE.

GLORIOSA ROTHSCHILDIANA.—With reference to Mr. O'Brien's interesting note on Gloriosa Rothschildiana, and to his remark that "it is very probable that under certain circumstances the climbing plants may become dwarf, as do many climbing plants under cultivation when the means of climbing are lacking," I would like to say a few words in support of Mr. O'Brien's opinion; and in verification of the fact that, even in a state of Nature, some climbing plants have a wonderful power of accommodating themselves to surrounding circumstances, and altering their habits of growth to an astonishing degree. In Malabar in South India, Gloriosa superba is found wild in abundance at an elevation above sea-level of 3,000 feet, and where the monsoon rains are heavy. Here this species assumes its climbing habit to the maximum degree, sometimes clinging to a thorny Bamboo-clump, and gaining a height of 12 to 15 feet from the ground before displaying its splendid crown of yellow and red blooms. In former days, in the cultivated Coffee-lands of this region, the plant seemed to revel under its altered conditions, and when left alone literally covered the neighbouring Coffee-trees with its foliage and flowers. In hoeing the Coffee, no Hindoo cooley would root up or otherwise destroy this, to them, favourite plant, and they (men and women) being passionately fond of flowers, might be seen working with their heads adorned with the beautiful blooms. The traveller in October and November, as he moves eastward into the territory of Mysore, will find the jungle less dense, but the Gloriosa superba in equal abundance to glad him on his way, but of a much dwarfer habit, owing, no doubt, to the greater lack of moisture, and the want of climbing accommodation. But by far the most striking example of the adaptation to circumstances on the part of this plant was once forcibly brought under my notice whilst travelling in the Collectorate of Tinnivelly in South India, a region two-thirds of which are almost sandy desert. While riding over the plains, I saw in the distance a veritable field of scarlet and yellow, but was quite at a loss to know what the flower was. On near approach, I was surprised to find that all this galaxy of beauty was caused by the blooms of the Gloriosa superba. Nothing in the shape of a supporting plant was visible as far as the eye could see, except the weird Palmyra Palm dotted over the burning sand. The Gloriosa, nothing daunted, assumed a lowly stature of 1 foot and under from the ground, and covering acres of that arid soil with beauty. In all the situations I have named, the plant undergoes a very long period of rest after the decay of the foliage, sometimes extending to six months without a drop of rain, hence the great value of Mr. O'Brien's advice that the tubers should be kept thoroughly dry after the flowering season is over till the period of growth comes round again. Another lesson from Mother Nature! It is to be hoped that the plant just flowered at Tring Park may be found on the market before very long, and that more of such a regal nature may be introduced to our shores from far-off Uganda. *J. Lowrie.*

TULIPA PRÆSTANS. — This very handsome and most distinct Tulip (illustrated in the *Gardeners' Chronicle*, May 23, 1903, p. 325, fig. 126), is a native of high mountains in Bokhara, and was first distributed by the late Dr. Ed. Regel, of the St. Petersburg Botanic Garden, who received it from his son Albert, then travelling in Central Asia. At first Dr. Regel only obtained herbarium specimens, and without waiting for fresh material, at once took them to be those of Tulipa suaveolens, Roth. Besides the typical form, Dr. Regel also describes a var. bicolor and a var. pluriflora (*Acta Horti Petropolitani*). Afterwards, when Dr. Regel had an opportunity of studying the living plants, he became convinced that, though varying in minor respects, the different varieties that can easily be picked out among a lot of imported bulbs of this Tulip have really no right to bear distinct varietal names, and he therefore reduced the three names to one, viz., Tulipa suaveolens, Roth, var. sylvestris, Regel (see *The Finest Early-flowering Perennials and Bulbous Plants*, a little-known Russian publication, by Dr. Regel). I may add here that, after careful investigation, I am convinced that Tulipa suaveolens, Roth, is nothing but the old Dutch red yellow-margined Duke Van Thol Tulip, the Tulipa dubia humilis of Clusius, Bauhinius, and other ancient writers, and the præcox of Parkinson. Without giving any reasons for so doing, Roth, a German botanist, who in the early part of the nineteenth century lived at Vegesack, near Bremen, described it botanically, and gave it the specific name T. suaveolens: see *Neue Annalen der Botanik*, vol. iv., p. 44. Roth's herbarium, which is kept at the State Museum of Oldenburg, contains two or three well dried specimens of his T. suaveolens, and these clearly and unmistakably represent the old Dutch Duke van Thol. In naming the Tulipa suaveolens sylvestris, the late Dr. Regel acted upon the idea that as the origin of the Duke van Thol Tulip has never yet been fully established, therefore either this new Central Asiatic Tulip represented its wild form, or that the old Dutch florists raised the Duke van Thol by crossing Gesner's Tulip with one or another of the oriental species, taking the then newly introduced sort as one of its parents. To the kindness of Dr. Robert Regel, of St. Petersburg, I now owe the information that his father, the late Dr. Ed. Regel, on further studying and becoming better acquainted with this peculiar Central Asiatic Tulip, was more and more convinced that in reality it had nothing whatever to do with Roth's Tulipa suaveolens (Duke Van Thol Tulip), and that it deserved to have a specific name more than did any other Tulip, and he intended to describe it accordingly. His subsequent health prevented him from doing so. The Messrs. Van Tubergen, from their collector in Bokhara, lately received an abundant supply of this most distinct Tulip, which had become extremely rare or extinct in most collections. I now considered that as the late Dr. Ed. Regel himself intended to describe it as a new species, it should not again find its way to gardens under its old faulty, cumbersome, and misleading name. I therefore proposed the name Tulipa præstans for it, and under this name it has already been shown at one of this spring's Royal Horticultural Society meetings, its brilliant colour, earliness, and unique habit, securing favour for it among Tulip fanciers. The importation received by the Messrs. Van Tubergen contains forms with solitary blooms in a scape, and also forms bearing several flowers on a stalk (the latter being the form distributed by the late Dr. Regel as T. suaveolens sylvestris). I have not yet been able to fully ascertain whether the forms bearing solitary flowers continue to do so, or whether the bulbs on becoming stronger by cultivation all become many flowered, so that I think it safest to postpone its full botanical description until next year, when the bulbs will have become completely established. Roughly speaking, the characteristics of this Tulip, which is very variable, may be briefly summed up as follows:—Bulb rounded, about 1 inch in diameter, with a particularly thick leathery skin, the latter being almost glabrous inside. Peduncle varying in height from a few inches to 1½ foot, covered, as well as is the foliage, with minute, closely set, white hairs, and bearing from one to many flowers. Flower-segments all uniform in shape, pointed, and of a peculiar light scarlet-vermilion colour. Botanically it should find a place among Mr. Baker's subsection 4 of the Gesnerianæ group, and perhaps comes nearest to the T. Kaufmanniana, Rgl. It is widely removed from T. Kolpakowskyana, which has a perfectly glabrous peduncle and foliage. *John Hoog, Haarlem, Holland.*

OPHIOGLOSSUM VULGATUM "SPORT."—Herewith I send a sketch of a very peculiar sport in this species, found by Jas. Hardwick at Bryumaur, Brecon, recently as a solitary specimen. As you will see, the normally simple fertile spike bears here two branches springing from its base, these being also forked and twisted, so that there are five spikes in lieu of one. I have heard of forked specimens, but this form is entirely new to me, and I have therefore sent the frond to the Kew herbarium. The barren portion of the frond is quite normal. Curiously enough, I recently received from the same source two or three Hartstongues of the projectum type, i.e., with a distinct tendency towards pinnate subdivision, another example of normally simple fronds trying to assume the more general pinnate character of other species. *Chas. T. Druery, F.L.S., V.M.H.* [We have at various times seen specimens of the Adder's-tongue Fern subdivided in this way. In the Brazilian O. palmatum the fertile spikes are two to twelve in number, and in the neighbouring genus Botrychium, the spike is branched like a panicle. ED.].

AGAVE APPLANATA VAR. PARRYI. — I was pleased to notice such a well-known horticulturist as Mr. Arnott writing in favour of such plants as Agava applanata var. Parryi in the *Gardeners' Chronicle*, p. 342. This species is certainly a very fine addition to our hardy succulent plants. I say hardy, because I think I may safely do so, it having stood the test of three winters here, exposed to all the rain, fog, and frost. The late Mr. Darrah imported three plants from America in the summer of 1900, which were planted in a raised border of sandy soil under a small Mountain Ash-tree. In the autumn, one of them produced a flower-stem which grew to about 6 feet in height, but owing to the lateness of their appearance, the flowers did not expand. This plant, in the usual course of Nature, died; but the others remain. One, however, was removed in May last year to a position in front, but beyond the shelter of the roof, of a verandah facing south. This plant, which was the larger of the remaining two, is now about the size of the specimen which flowered, and it has twenty-four fully developed leaves; its diameter is 22 inches, and its height 14 inches. It is growing in a slightly raised position, in loose, sandy, made-up soil, which rests upon the richer soil of the garden, and is now in perfect condition, and has unfolded six new leaves already this season. These new leaves are very glaucous, almost white on their upper and under surfaces, and are beautifully marked with the impression of the spines the whole length of the leaf. The very dark red, almost black spines, in contrast with the white leaves, give the plant a very neat, pleasing appearance. *Arthur Cobbold, Hollypoint, Healon Mersey.*

THE PREPARATION OF STRAWBERRY-PLANTS FOR FORCING.—I read with interest Mr. Coomber's notes on this subject in the *Gardeners' Chronicle* on the preparation of Strawberries for forcing, and I quite agree with his advice to take the runners from plants that have not borne fruit, if the necessary space and the labour afforded the gardener allow of this being done. At this place 300 plants were forced, mostly Royal Sovereign. The runners were taken from old plants that had borne a good crop of fruit, and when shifted from the layering-pots to the fruiting-pots (32's), the loamy soil used was mixed with a small quantity of spent Mushroom-bed materials, and a sprinkling of bone-meal and Peruvian-guano; when the fruit was set, a light dressing of Clay's Fertiliser was pricked in the surface of the soil. Finer forced Strawberries I have never seen, the fruits being of large size, fine colour, and good flavour; some of them turned the scale at 2 ozs. *H. Berry, gr., Highnam Court, Gloucester.*

PUYA CHILENSIS.—A fine example of this Bromeliad was exhibited at the Temple Show, last week, by Mr. Dorrien-Smith, in whose garden at Tresco it forms a striking feature. There is a figure of it in the *Botanical Magazine*, t. 4715. (1833), from a plant flowered at Kew, where it was "cultivated in a cool stove;" and there is a life-sized painting in the North Gallery of a plant seen in Chili by Miss North in 1885. The following description of it occurs in her *Recollections of a Happy Life*, p. 313:—"After much searching, I saw for the first time great masses of the Puya chilensis, the flowers of a pale yellow-green, with intensely orange stamens, growing in bunches which were arranged spirally round the head of an Aloe-like stem, 8 or 9 feet high, forming nearly a yard of thick head as big as that of an Agave. The bunch of leaves at the base of the huge flower (peduncle) was like that of the Pine-apple, its relation. The group looked grand as I first saw them, standing out from the cliff, with the deep blue sea and sky for a background.

That species of Puya always grows near the sea." This description fits Mr. Dorrien-Smith's plant as staged at the Temple show, and, thanks to his generosity, is now to be seen in a conservatory at Kew. It is quite different from P. lanuginosa, the name borne by the plant at the Temple, that species having narrow, rigid leaves, green above, white lepidote beneath, armed with furfuraceous spines, and greenish-blue flowers. *W. W.* [Puya chilensis, as growing in Mr. Smith's garden at Tresco, was illustrated in the *Gardeners' Chronicle* for August 17, 1872. Ed.]

STAGING HARDY PERENNIALS AT THE TEMPLE SHOW.—How often do we see groups of plants, specimens, and cut flowers, exhibited at the leading flower shows in a manner which entirely hides their beauty. It is the ambition of amateur and professional horticulturists, who are fortunate enough to get a place in the great show, to produce the best possible. To exhibit such well grown plants and flowers crowded to such an extent is, however, painful to observe. Particularly noticeable were a few overcrowded groups at the last Temple Show. Passing through the long tent where most of the herbaceous perennials were staged, I asked an exhibitor why he did not afford the exhibits more room, and invariably the answer was, "I could have covered double the space allotted to me." No doubt, but why not cover that amount of space to the best advantage with a few of the best of the exhibitor's collection, in as many varieties as possible within the bounds of good taste? Another exhibitor showing Tulips, on being asked why he did not untie and release the flowers, exclaimed that "they were best in close bunches, as there was then no fear of their opening from the heat in the tent." In passing along to the end of the tent, I came to a splendid group of herbaceous and bulbous plants staged by R. Wallace & Co. in an artistic manner, and so arranged that one could see every plant to perfection, while the colours were blended in such a manner that it was a pleasure to look upon them. It represented a hardy plant border, and deservedly received the Society's Gold Medal, the first given individually for hardy perennials at a Temple Show. If other exhibitors would take this group as an example how to stage plants and flowers of this particular section, future exhibitions would become more interesting than hitherto. *Arthur W. Wade.*

SEVERE HAILSTORM.—We were visited on Thursday, May 28, with one of the most serious storms ever remembered in this part of Gloucestershire. The lumps of ice that fell were as large as a Broad-kern, and quite flat in shape. It is most remarkable that only one square of glass was broken in the whole place, but serious damage was done to Chrysanthemums and all pot-plants standing out-of-doors, also to vegetable crops. What little fruit remained I fear is now all gone. *F. Capp, Toddington Park Gardens.*

THE BIRDS AND APPLE-TREES.—The Apple-trees this season at Gatton Park gave exceptional promise of a fine crop of fruit up to April 13, but between that date and the 25th every flower-bud in our 6 acres of orchard was taken by the birds, the sparrow and the tits being more accountable for the loss than the bullfinches in this case. Without doubt, the time has come when all gardeners and farmers should join hands and try to eradicate the destructive, mischievous sparrow, which abounds in such numbers practically all over the country, making the production of fruits, vegetables, and flowers expensive and difficult. No doubt, some will be able to point out to us the good that they do as a compensation for their depredations, but I must class them with other enemies of the gardener, such as slugs, mealy-bug, &c., which are all bad, and seemingly serve no good purpose. *W. P. Bound, gr., Gatton Park, Reigate.*

HERBACEOUS CALCEOLARIAS.—I have to-day (May 15) witnessed the most unique display of herbaceous Calceolarias I have ever seen; they were in an amateur's small lean-to greenhouse, and consisted of fifty odd plants. The striking peculiarity was the smallness of the pots in which they were growing. The largest pot I could find in the collection was a medium 60, and they ranged from that size down to a thumb-pot. The plants were about 1 foot high, and were bearing trusses of flowers in great variety, that would have done credit to any of us gardeners with plants in 24's, or even 16's. The individual flowers were 2 to 2½ inches across. I naturally remarked to the proud owner, "high feeding," and he told me that he used ground and dissolved bones alternately with soot-water. This treatment evidently suited them, as I must say that in all my gardening experience I have never seen their equal for splendour of flower and foliage in pots of so small a size. *C. Buckland, F.R.H.S., Braintree.*

A FINE PEACH-TREE UNDER GLASS.—I know of no object in the garden more worthy of admiration than is a well-trained and fruitful Peach-tree; yet how rare it is to find good specimens, and the reason for this is not difficult to discover. There are at Lockinge several that might be termed "rather nice trees;" but the tree that I have in my mind is a standard, with a stem 4 ft. 6 ins. in height, and 14 ins. in circumference, the branches covering a trellis measuring 28 ft. by 18 ft., or about 500 square feet, and carrying about 400 fruits, which at the present time are in the stoning stage, and the size of the fruit is very satisfactory. As regards the leaves, some of

Fig. 142.—Seedling Cacti in M. De Laet's Nursery at Contich, near Antwerp.

them measure 8 by 2¾ ins., and their colour is attractive, and this has been the case for eight years in succession. The border may be said to be enclosed in an open brick chamber, which measures 28 ft. in length, 5 ft. 6 ins. in width, and 2 ft. in depth. One of the reasons why I am so much interested in this particular tree is, that I received it from Middlesex, planted it in Northamptonshire, and removed it to Berkshire after several years' growth, and when upon its last journey it was reported to be ruined. The variety is Bellegarde. *Wm. Fyfe, Lockinge Gardens, Wantage.*

FORTUNE'S YELLOW ROSE.—In the south-west, examples of this beautifully-tinted Rose, a supplementary illustration of which, under glass, appeared on May 16, are occasionally to be met with in good health in the open. Out-of-doors it requires a sunny and sheltered wall, where it is free from the effects of all cold winds. A draughty situation is fatal to its well-being, and several that I have known planted in exceptionally warm localities, but insufficiently protected from the wind, have failed from the latter cause. One plant growing in a warm South Devon garden is always a beautiful sight towards the end of April. This specimen is trained on a wall facing south-west, and is sheltered from the north-west by another wall. It blooms freely, and I have counted over a hundred exquisitely-tinted blossoms, and twice as many buds upon it. Less than 100 yards away it has been tried, but has never been satisfactory, owing to a sufficiently sheltered position not being available. At Tregothnan there is a fine plant trained on the front of the house, which is very healthy, and flowers well. Fortune's Yellow is, however, a Rose that cannot be recommended for general planting in the open, for it is only in sheltered sites in exceptionally favoured localities that it is likely to succeed. Being naturally a very early blossomer, its flowers are apt to be cut by the spring frosts, and where these are the rule, it would be folly to attempt its culture. *S. W. F.*

—— I remember reading the remarks of your correspondent, P. Isherwood, respecting this Rose, shedding its leaves when the buds were opening. But not having experienced any difficulty in this respect, I refrained from passing an opinion as to the cause. I had, however, a reminder this season of the remarks made by one plant here shedding its old foliage, at the same time that it lost a portion of the new. And this Rose, like most Roses, when devoid of foliage, loses half its charm. I at once came to the conclusion that syringing was being carried out in excess, and the moisture in the house was too great. Syringing was consequently stopped, and a drier atmosphere maintained, with a freer ventilation, with the result that no more of the new foliage dropped. This is my only experience of this Rose dropping its new leaves; and it appeared to me to be a most unnatural occurrence. But the cause and cure I will leave as open questions. *W. Fyfe, gr., Lockinge, Wantage.*

BELGIAN HORTICULTURE.

(*Concluded from p. 322.*)

CACTUS-RAISING AT CONTICH.

In a delightful Flemish village half-a-dozen miles out of the important city of Antwerp, we found the very interesting Cactus nursery of M. Fraatz De Laet. There was a time when Cactaceous plants were popular in England, or at any rate more popular than they have been of late years, notwithstanding that efforts have been made to revive an interest by the institution of a Cactus journal, which we believe was very short-lived, and by other means.

Messrs. H. Cannell & Sons, of Swanley, and a few other English nurserymen, have collections of plants, and there is a magnificent collection at Kew, but we have never seen the work of raising Cactaceous plants from seeds carried out as it is by M. De Laet at Contich, who cultivates some—

Fifty Thousand Seedlings

each year. The sunshine may be clearer at Antwerp than it is here, but whether this be so or not, succulent plants appear to fruit and mature their seeds most freely. Thus, we were informed that M. De Laet sows each year from twenty to thirty thousand seeds which have ripened in his own nursery, and these are a small proportion of the whole. In addition to these are the plants raised from seeds imported from America, to the number of 20,000. It is curious, but not without parallel in other matters, that M. De Laet should buy these seeds from America, and yet find afterwards a good sale for the young plants in the same country. In connection with the seeds ripened in M. De Laet's nursery, it may be remarked here, that the fertilisation of the flowers is not left to chance, but efforts are made to pollinate them each day, when they are in a fit condition, as we should do in cases of early Vines and Strawberries. There is also considerable direct cross fertilisation done, with a view to obtaining superior varieties. The seeds are sown in pans and small wooden boxes, and are "pricked" out into wooden boxes containing soil, composed chiefly of leaf-mould, directly they are sufficiently large to be handled conveniently. Very quaint they look, growing in rows in these

boxes; tiny plants of Echinocacti, of less size than Peppercorns, but already well rooted in the decayed leaves; one year-old-plants of Cereus and Mamillarias, and plants of every stage from seedlings yet scarcely visible to plants higher than a man's stature. The seeds are sown in a temperature of about 20° Centigrade (68° Fahr.), and after germination, are cultivated upon shelves, and in other light positions in the span-roofed houses, until early summer, when they are removed to large frames, in which young plants of low stature succeed remarkably well.

PERIOD OF GERMINATION.

In reply to a question we put respecting the germination of the seeds, we were told that Mamillarias germinate quickest, and Opuntias slowest, the differences being as follows:—Mamillarias, 3, 4, or 5 days; Cereus, 7 days; Echinopsis, 8 days; Echinocactus, 10 or 12 days, and Opuntias 3 to 4 weeks, often longer.

Particularly good varieties are perpetuated by stock obtained by rooting cuttings. Another method of increasing stock is that of grafting, which is used frequently for putting a variegated form upon another stock. An instance is that of Echinopsis salpigophora aurea, a wholly yellow form, which was grafted on to the stock of a Cereus. Some of the yellow sports have a weird appearance, and the growths seem to be quite destitute of chlorophyll. Cuttings are more often employed for increasing the Phyllocactus and Rhipsalis, but the Echinopsis, Echinocactus, Cereus, and Mamillarias, are usually raised from seeds.

In one of the half dozen or so span-roofed houses, there was a large batch of good sized plants of Phyllocactus representing a large number of varieties, and one plant bore a fruit about the size of a hen's egg; P. macropterus had occasional growths 1 mètre 90 centimètres long before assuming a flattened leaf-like form. Some of the plants of Phyllocactus planted out grow very well in that condition, enjoying the greater freedom the roots are thus given.

ATTRACTIVE SPECIES.

Amongst the many species of Cactaceous plants that were particularly attractive in M. De Laet's collection were those following: Echinocactus minusculus, not more than half an inch high, growing in tiny thumb pots, yet bearing as many as five flowers each; E. De Laeti, of which an illustration of a plant in flower was given in a supplement to *Gardeners' Chronicle*, for March 14 last; E. Haselbergii, 4 inches high in 5-inch pots, each bearing five open flowers and others to expand, colour rich orange-red, wonderfully effective for a plant so minute in size; E. altcolens, which was represented by 100 good plants, notwithstanding the had reputation the plant has for making growth; Echinocereus dasyacanthus, Cereus flagelliformis, with rosy-red Epiphyllum-like flowers; and a weeping variety of Opuntia. This Opuntia was sent to Europe from Benson, near Arizona, by Dr. C. A. Purpus, M. De Laet being his sole representative in Europe. The appearance of the plant is most grotesque; the leading stem is erect, and has pairs of opposite branches on either side, that droop down by the side of the main stem like the arms of an idle man.

M. De Laet has a very fine collection of Rhipsalis, cultivated in baskets and pans, suspended from the roofs of the houses, and many of the species are certainly worthy of cultivation, even by those who have no desire to have a general collection of succulent plants; their culture is not difficult, and if they were grown in pans, and suspended in the warm Orchid-houses, many of the species would have a good effect. Rhipsalis communis in a little pan was very pretty, bearing white flowers, and reddish-purple fruits along the margins of the growths; R. salicornioides, also in baskets, had growths 6 ins. high, and bore yellow coloured fruits; R. pachyptera violacea, a beautiful plant, the growths of which assume rich brown tints, and look uncommonly like Oak-leaves in autumn; and R. Swartziana, having attenuated growths 1½ foot in length. A species of Cotyledon, with rose coloured leaves and a silvery sheen, was very effective; and a new Euphorbia, with a gouty stem almost like a diminutive Cycad, and having leaves produced from the margin of the apex, has not flowered.

There were also Gasterias, Aloes, Epiphyllum, Pereskia, Melocactus, &c., to which we cannot allude in detail upon the present occasion.

Mention has been made of the frames out-of-doors. Many of these intended for very young plants are only ¾ foot above the ground level, and in this and other ways efforts are made to keep all the plants as near to the glass as possible.

In the open garden, M. De Laet cultivates a number of species that have proved hardy at Contich, including many species of Opuntia, and representatives of most other genera.

At the time of our visit many of M. De Laet's larger and best specimens were at the Ghent exhibition, for he won 1st prizes for collections of fifty plants, twenty-five plants, twelve specimens of Euphorbia, and twelve Cactus, Phyllocactus, and Epiphyllums in flower. M. De Laet, who is a Coffee merchant, and has offices at Antwerp, we believe, commenced to cultivate Cactaceous plants merely for the interest he had in them, but latterly the work has become a commercial undertaking. The seedling Cactaceous plants shown in diminutive glass-cases at recent Drill Hall meetings by Mr. R. Anker, originated in the Contich nursery.

SOCIETIES.

THE AGRICULTURAL SEED TRADE ASSOCIATION.

MAY 25.—The annual dinner of this Association took place at the Holborn Restaurant, under the Presidency of EDWARD SHERWOOD, Esq.

The Chairman gave the toast of the evening, that of success to the Agricultural Seed Trade Association, and remarked that it gave him the greatest pleasure in doing so, because the Association deserved the success in the future which it had had in the past twenty-three years of its existence. He said an Association like this one appealed to all traders upon the market, because it was in their interests its work was done. Its main object was to standardise and regulate bargains and sales made by its members, and to assist contractors in the fulfilment and adjustment of the same, and he considered it to be of the greatest advantage to both buyers and sellers to know that the contracts they entered into were made subject to a fixed code of rules and regulations determined by a representative association of members such as is this one Further, any difficulty arising out of disputes could be adjusted expeditiously and without unnecessary expense, and should occasion arise where the co-operation of seed merchants was required, it could be done more readily by an association like this, representing as it did the interests of the agricultural seed trade of this country. There was no doubt the association had achieved a very great amount of success in the past, as was evident from the decrease in the number of disputes and subsequent arbitrations which arise at the present time. The Chairman regretted that, although the disputes and arbitrations had decreased in number, the membership was not maintained, and he asked all those who were members to do all they could to induce other traders to join its ranks, so that its decisions would have greater weight, and its influence might be more largely felt. He would not detain them longer, but ask them to drink to the success of the Agricultural Seed Trade Association. Mr. Caldecott very ably proposed the toast "Success to Agriculture," to which Mr. Loud responded.

MANCHESTER WHITSUNTIDE SHOW.

MAY 30 TO JUNE 3.—A day of brilliant sunshine, and an exhibition much superior to those held during the past five years—such were the conditions under which Mr. P. WEATHERS, the Curator of the Royal Botanical Gardens, presented his annual Whit-week show to the Manchester public.

It would be impossible to find a more suitable place than the annexed buildings, in which even the most tender plant is safe from the weather, however untoward; and good as we have always thought the arrangements to be, we may this year say that by the removal of the tables to the extreme sides of the exhibition-house, the Curator has doubled the floor space, simplified matters for exhibitors, and greatly enhanced the general effect. Turning to the schedule, we find some thirty competitive classes, which in many instances were well contested.

For the best miscellaneous collection of Orchids in bloom, E. ASHWORTH, Esq., Harefield Hall, Wilmslow (gr., J. Holbrook), scored a victory, some of the more noticeable plants being Cattleya Mossiæ Victoria, C. speciosa nobilior, Brassavola Digbyana, Dendrobium atro-violaceum, and many of the choicest forms of Miltonias and Odontoglossums; W. DUCKWORTH, Esq. (gr., Mr. H. Tindall), Shawe Hall, Flixton, was 2nd, with very fine plants, among others, of Cypripedium grande, Cattleya Mossiæ Heatonesis, and a fine lot of Oncidiums.

Mr. J. CYPHER, Cheltenham, richly deserved the prize in the nurserymen's section; his group, which was excellent in arrangement, formed an object-lesson to exhibitors, every plant rising from mounds and a moss-covered groundwork. The more striking forms were Cypripedium grande atratum, Odontoglossum Adrianæ magnificum, Lælio-Cattleya "Iona," C. gigas × L. Dayana, and extra well-flowered plants of Miltonia vexillaria and varieties.

For ten specimen Orchids in bloom the honours were divided between Messrs. ASHWORTH and CYPHER, who occupied the respective positions of 1st and 2nd. Mr. ASHWORTH had splendid plants of Miltonia vexillaria "Empress Augusta," Epidendrum prismatocarpum, Cattleya Mossiæ Reineckiana, Lælia luteo-purpurea, Vuylstekeana, and Cypripedium Rothschildianum; and Mr. CYPHER had Cattleya Mossiæ Wagneri and Cœlogyne Dayana.

The class for the best collection of Odontoglossums showed Mr. ASHWORTH'S plants to be again unapproachable, his plants being more diversified than those of his opponent, Mr. JNO. RONSON of Bowdon, and yet consisted of only a third of the number. Such forms as O. Pescatorei, Halli, leucoglossum, and luteo-purpureum elegantium, were splendidly represented.

Mr. CYPHER was the only competitor for ten stove and greenhouse plants, smaller perhaps than usual, but models of good culture. His plants of Pimelea diosmæflora, Ericas ventricosa grandiflora and Cavendishi, and Darwinia tulipifera, looked well.

Groups arranged for effect are always a distinct feature here, the rock bound frontage of the banks giving plenty of scope for tasteful arrangement.

The large group, not less than 300 square feet, was arranged by Messrs. R. P. KER & SONS, Aigburth, Liverpool. It consisted of a series of mounds of foliage and flowering plants.

That for not less than 150 square feet was well contested, JAMES BROWN, Esq., Longfield, Heaton Mersey (gr., Mr. J. Smith), proving the victor, with an arrangement which might not have pleased everyone, but which possessed an air of gracefulness seldom seen in such things. Plants of Turner's Crimson Rambler Rose, rising from a base of Gypsophila paniculata, had a telling effect. Earl of ELLESMERE (gr., Mr. W. Upjohn), who had admirable quality, somewhat overcrowded, was 2nd; J. HARKER, Esq., 3rd.

For not less than 100 square feet: 1st, J. LAMB, Esq., Kenwood, Bowdon (gr., Mr. S. Vickers); 2nd, Mr. T. SHAWCROSS, Stretford.

A Collection of Roses arranged for Effect.—Here JAMES BROWN, Esq., a well-known Manchester rosarian, excelled himself with plants perfectly grown, and solid, well-coloured flowers, the best of which were Bessie Brown, Lady Mary Beauclerc, Mrs. J. Laing, Mrs. E. Mawley, Lady Mary Currie, La France, and Merveille de Lyon; 2nd, Mr. T. HARKER.

The class for British Ferns quite outrivalled the exotics, some grand specimens being shown by Mr. HARKER.

Coleus, &c.—Mr. J. BROWN won with six well-coloured Coleus, and Mr. J. HOLT with a grand blue Hydrangea, as a specimen greenhouse plant.

Herbaceous Calceolarias were much better than usual; G. H. GADDUM, Esq. (gr., T. Willacy), 1st; J. HARKER, Esq., 2nd. Mr. HARKER also won with twelve Cinerarias.

Herbaceous, Perennial, and Alpine Plants were well shown, and some extra good varieties were observed. For not fewer than fifty, 1st, Mr. J. LAMB; 2nd, Mr. J. HOLT; 3rd, Mr. W. H. THORLEY. For not fewer than thirty-six varieties, 1st, Mr. J. DERBYSHIRE; 2nd, Dr. POWNALL. For twelve, Mr. T. SHAWCROSS was 1st.

The glory of the stove and greenhouse plants seems for a time to have departed; but a word of praise is due to winners in the Caladium and Gloxinia classes. There were Gold Medals or cash prizes offered for Begonias, Amaryllis, and Clematis, but none of the classes was filled.

Dinner-table Decorations.—The most artistic of these was arranged by Mr. JNO. NIXON, and consisted of Primula obconica, Schizanthus, and yellow Oncidiums, interspersed with Asparagus plumosus; 2nd, Mrs. HODGKINS.

TRADE EXHIBITS.

Gold Medals.—The trade is always in strong force at Manchester, and exhibits were this year very well divided. Perhaps a feature deserving of special mention was the remarkable exhibit of Rhododendrons from Messrs. JOHN WATERER & Co., Ltd., Bagshot, every truss of flower being perfection. Strikingly beautiful was R. Pink Pearl; Mum, too, is of the purest white with yellow blotch; Gomer Waterer, white, with pinky-heliotrope blotch; and Michael Waterer, a fine crimson-scarlet, were very conspicuous.

Messrs. J. COWAN & Co., Gateacre, had a superior table of Orchids, and two especially fine crimson and chocolate blotched unnamed forms of Odontoglossum crispum received First-class Certificates. The quaint Cœlogyne pandurata, fine types of Cattleyas Mendeli and Mossiæ, Cymbidiums, and Cattleya intermedia alba, were well represented.

Messrs. CHARLESWORTH & Co., Bradford, contributed largely to the success of the show with beautifully flowered plants, comprising everything new in recent years. For Lælio-Cattleya "Fascinator" and L.-C. Major-General Baden Powell, First-class Certificates were granted; and Awards of Merit to Phaius "Phœbe," P. Humbloti × Assamicus, Lælio-Cattleya "Dora," and L.-C. Phœbe × C. Schroderæ, a charming flower partaking much of the latter.

Messrs. SANDER & SONS, St. Albans, set up a beautiful lot of Orchids and other plants, receiving First-class Certificates for Lælio-Cattleya Arnoldiana magnifica, a rich flower; Brassavola-Cattleya "Empress of Russia," a huge flower with magnificent fringed lip; the splendid hybrids Odontoglossum ardentissimum numosum, Odontoglossum Wilckeanum venerandum; Awards of Merit were awarded to Odontoglossums Adrianæ F. K. Young and amœnum, and for the new variegated Selaginella Watsoniana.

Messrs. HUGH LOW & Co. made a fine display with their excellently coloured Codiæums, Ericas, Boronias, Tremandras, Schizanthus wisetonensis, Verbena Helen Willmott, Lobelia Low's Triumph, and very superior and handsome Tree Carnations. For Dimorphotheca Ecklonii, a free-flowering Composite, with Marguerite-shaped flowers having a bluish reflex, they were granted a First-class Certificate.

Messrs. JOHN PEED & SONS had Caladiums sufficiently fine to attract all connoisseurs.

Messrs. W. CLIBRAN & SON showed Calceolarias in the form of a huge bank; Tree Carnations, too, were fully up to the average, and the Gold Medal awarded was well merited.

Silver-gilt Medals went to Messrs. REAMSBOTTOM, Alderborough Nursery, Geashill, King's Co., for their superb double Anemones; and to Mr. JNO. ROBSON, for Tree Carnations.

Silver Medals were allotted to Messrs. W. BULL & SONS, London, for a bank of select Orchids; to Messrs. DICKSON & ROBINSON, Manchester, for well-grown Mignonette, Kalosanthes, Boronias, and the Verbena Miss H. Willmott; to Messrs. DICKSON, BROWN & TAIT, Manchester, for early-flowering Gladioli, Lily of the Valley, and Spanish Iris; and to Messrs. JONES & SONS, Shrewsbury, for Sweet Peas, &c. *A Correspondent.*

TULIP SHOW AT WAKEFIELD.

THE sixty-eighth annual exhibition promoted by the Wakefield Amateur Tulip Society, was opened in the Brunswick Hotel, on Whit-Monday, and despite the somewhat adverse conditions of the season for Tulips, a number of very creditable blooms were shown in the Society's classes.

Additional interest was excited in this year's show by the institution of an open class, in which the principal prizes were carried off by two well known exhibitors, viz., Mr. J. W. BENTLEY, Stakehill, Manchester, and Mr. C. W. NEEDHAM, Warrington, whose specimens were remarkable, both in the matter of size and purity.

Mr. BENTLEY, was 1st in the open class with Sir Joseph Paxton, Thurstan, No. 220, Trip to Stockport, Annie Macgregor, and Mrs. Collier; Mr. NEEDHAM being 2nd with Dr. Hardy, Sir Joseph Paxton, Mabel, Mrs. Atkin, Talisman, and Elizabeth Pegg; while Mr. I. WHITWORTH, Wakefield, was a good 3rd with W. Wilson, Lord Frederick Cavendish, Mabel, Industry, Talisman, and Bertha.

Messrs. BENTLEY and NEEDHAM were 1st and 2nd respectively for breeders; the other three prizes being awarded to Messrs. J. HARDWICK, I. WHITWORTH, and A. MOORHOUSE, members of the Society, who along with Messrs. J. H. STILL and R. ROBINSON of Horbury, carried off the bulk of the other society prizes.

Obituary.

SAMUEL MCGREDY, J.P.—It is with regret that we announce the death of Mr. McGredy, senior partner of the firm of Samuel McGredy & Son, Portadown, Ireland, which occurred on the 28th ult. Deceased, who was in his seventy-third year, had been in declining health for a considerable time, and although his demise was not unexpected it will be sincerely regretted. As head of the well known firm of nurserymen, florists, and seedsmen, Mr. McGredy enjoyed a wide popularity. A gentleman of the strictest integrity — upright, straightforward, and outspoken—he enjoyed the friendship and esteem of all who came in contact with him, both in private and public life, and has been a Justice of the Peace for the last five years. He was a man of undoubted business capacity, and the high reputation which the firm of McGredy & Son enjoy to-day, was largely owing to his tactful management of its affairs and his ceaseless energy and enterprise.

SIR JOHN HUTTON died on the 31st ult. at his residence at Kensington Court, W., at the age of sixty-two. When the London County Council was created, he was elected a member, in 1889, and from the first took a very active interest in the work of that body. In 1892 Sir John Hutton was elected Chairman. He was Chairman of the Finance Committee of the Royal Botanic Society, in whose affairs he took much interest.

THE BENEFIT OF FIRM SOIL.

IT seems a hard saying that soil firmly compressed is in better condition to produce garden stuff generally, than that which is open. For do we not in digging, in trenching, and in operations of a kindred nature, endeavour to pulverise the soil, and render it as friable as its nature will permit? Experience and observation, however, bear out the correctness of the above sentence. Up to a certain point cultivation may be repeated with advantage, and soil in a finely comminuted condition is undoubtedly to that extent more fertile than that less well broken up; but crop the ground without previous compression, and the chances are that unbroken soil will yield better results. There are, however, a few vegetables that seem to thrive better in a soil somewhat loose in texture. The Cauliflower is one such, and the Turnip, and perhaps the Potato, but even in the case of these, slight compression is not without its advantages.

Some crops succeed so much better when the ground is firm that the value of compression in these instances is admitted and acted on by all. As one such, I need mention only the Onion. Then there is that important winter crop, Brussels Sprouts, which, as an inducement to the production of hard, firm, little sprouts, must be planted in soil equally hard. If I were to dig ground for this vegetable, I should certainly get nothing but a mass of little, immature, Celewert-looking things on the stems. I have tried Broccoli, as much to render the plants hardy as for any other reason, under a similar treatment, but they have not responded to an extent to induce me to make it permanent. The ground after digging, or rather previous to planting, may, however, be firmed to any extent one chooses with the best results. Celery, again, may be instanced as a vegetable that from its nature one might expect to succeed better grown in a loose soil than in one quite firm; but just the opposite is the case, though possibly the quantity of manure employed to induce a crisp growth may have not a little to do with the ultimate results. Alike in the preparatory bed of soil into which seedlings are planted, as well as in the trenches, it is my experience the prepared material in which they are planted cannot be too firmly compressed so long as the operation is effected while the soil is somewhat dry.

Then, take the Tomato as another example. Of the crops of this vegetable-fruit, two are annually secured from plants set in borders that are as hard as well-beaten paths. The soil is never changed, nor yet dug, small holes being made for the plants, which are quite small, and in which they quickly establish themselves. Short, stubby growths, plenty of fruit, and a general immunity from the various ills that afflict the Tomato and worry its cultivators, are the results.

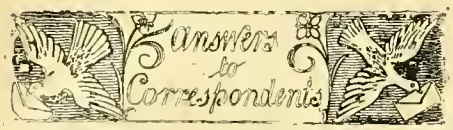
Flowers exhibit the same characteristic liking to well-cultivated soil well firmed. Some, as Begonias and the Celosia-tribe, no doubt revel in a soil rendered more or less open by the introduction of a dressing of manure; but while that is the case, it is also a fact that these succeed the better if the material be well firmed about the plants. As for the majority of plants, it is made a point to either tread with the feet the beds and border previous to planting, or immediately thereafter. The result is a generally more healthy growth, a more floriferous habit, and improved colour in leafage and in flower.

It is perhaps unnecessary to extend these notes by giving more examples, but they would be incomplete were the beneficial effects as regards the treatment of the plants while growing unnoticed. For example, in firm soil, vegetation succeeds with less water applied than is required in loose soil. The reason will be apparent to anyone who compresses soil previous to a period of dry weather, moisture being retained very much longer than in loose ground; then when water is applied, a smaller quantity suffices, and as a matter of course, the period when a second application is called for is much extended. Another important point is the more rapid exhaustion of loose than firm soil. Even manure disappears from the former with astonishing celerity; while in firm ground we turn up manure, even when possessed by roots, in a wonderfully fresh condition. These facts no doubt to a very great extent indicate the reason why the generality of plants succeed so much better in the one class of soil than the other. Though not exhausting the list, I shall only mention further the greater facility with which firm soils are cultivated in summer than loose ones, seeds without a doubt germinating more quickly in the latter, hence more weeds have to be destroyed. *R. P. Brotherston.*

TRADE NOTICE.

MR. W. WILLIAMSON, who was for many years Gardener at Tarvit, and who has been lecturing during the winter and spring under the auspices of the Edinburgh and East of Scotland College of Agriculture, has recently taken over the small nursery and florists' business of Logie Green, Edinburgh. Logie Green, one of the many estates which originally surrounded the old town, has been practically swallowed up in providing housing accommodation for the workpeople engaged in the multitude of small productive industries for which the eastern portion within the city boundary is famous. The old mansion was demolished several years ago, and nothing of the old demesne remains but the name, which has been appropriated by the small nursery that covers the old site of Logie House.

MR. GEO. BURROWS, for the past five years head gardener at The Dell, King's Norton, and previously at Berwick House, Shrewsbury, has opened a flower, seed, fruit, and landscape gardening business at Watford Road, King's Norton.



*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

ANALYSES OF PIG MANURE: *Anxious One.* Fæces, fresh—Water, 820·0; organic substance, 150·0; ash, 30·0; nitrogen, 6·0; potash, 2·6; soda, 2·5; lime, 0·9; magnesia, 1·0; phosphoric acid, 4·1; sulphuric acid, 0·4; silica and sand, 15·0; chlorine and fluorine, 0·3. Urine, fresh—Water, 967·0; organic substance, 28·0; ash, 15·0; nitrogen, 4·3; potash, 8·3; soda, 2·1; magnesia, 0·8; phosphoric acid, 0·7; sulphuric acid, 0·8; chlorine and fluorine, 2·3.

APPLE-TREE LEAVES BLISTERED, &C: *H. J.* The effects of frost or cold winds.

BOOKS: *W. Jones, Hereford. The Horticultural Exhibitors' Handbook,* by W. Williamson, revised by the late Malcolm Dunn. Published by W. Blackwood & Sons, Edinburgh and London. Probable price 2*s.* 6*d.*

CORRECTION: Asparagus myriocladus, shown by the Ranelagh Nurseries Co., Leamington, was awarded a First-class Certificate at Holland House, *not* an Award of Merit.

CORRECTION: GLORIOSA CARSONI. — This new species, mentioned in the *Gardeners' Chronicle*, May 23, p. 324, was described from a dried specimen sent by Mr. A. Carson from Lake Tanganyika to Kew. The plant has never been cultivated at Kew. *J. O'B.*

CUCUMBER PLANTS DISEASED: *Z. Green.* The foliage is affected with a fungus, Cercospora Bolleana. Cut off everything affected with the fungus, and dress several times at intervals with sulphide of potassium, at the rate of ½ oz. to 1 gallon of water; or if the plants are badly affected, clear out and burn them forthwith, and sulphur the house thoroughly.

FERN: *A. B. C.* You have been in too great a hurry; the plant is all alive, at least in the centre of the crown, and had it been planted out in a shady corner it would probably have grown.

FIGS DISEASED: *Borderer.* The fruits are infested with a fungus, Botrytis cinerea. They should be collected and burned forthwith, afterwards spraying the tree with liver-of-sulphur, at the rate of ½ oz. dissolved in 1 gallon of water. Let this be done from four to six times at intervals.

GRAPES BROWNED AND SPOTTED: *J. B.* The "spot" disease, Glæosporium læticolor. No known cure. Remove all affected berries, burning them forthwith, and spray with water in which liver-of-sulphur to the amount of half an ounce to 1 gallon of water is dissolved.

GRUB BORING IN BRANCH OF A PEAR-TREE: *J. M.* The larvæ of the Wood leopard-moth, Zeuzera æsculi. The grub may be killed by forcing a piece of stiff wire up the burrows it makes.

NAMES OF INSECTS: *George Dolan.* The green caterpillars are those of the winter-moth; the small, dark-coloured one is that of a species of Tortrix; the small red objects on the bark are the eggs of a species of Bryobia. (See *Gard. Chron.*, March 14, p. 176.)

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*C. H. G.* Orchis mascula, Shakespeare's long purples.—*Charles Ashby.* Cytisus sessilifolius.—*G. T. Halton.* 1, Echeveria metallica; 2, Cissus discolor; 3, probably Fuchsia corymbiflora. Send when in flower; 4, Rochea falcata; 5, Sempervivum tabuliforme; 6, Acacia armata.—*T. F.* Bifrenaria Harrisoniæ, not the best form of it.—*E. T., Manchester.* Oncidium phymatochilum.—*Veritas.* Masdevallia coccinea, and an ordinary Colax jugosus.—*C. H. T.* 1, Dendrobium transparens; 2, D. Devonianum; 3, D. capillipes; 4, Bulbophyllum rufinum; 5, Cirrhopetalum picturatum; 6, Angræcum falcatum; 7, Aërides japonicum. The last two are Japanese, and will thrive in a cool house.—*A. W. G.* 1, Ornithogalum arabicum; 2, Scrophularia aquatica.—*E. T., Brighton.* Oncidium Gardneri.—*J. S.* Tilia parvifolia; and a variety of Ulmus campestris.—*A. B. C.* Tellima grandiflora.—*Hortus.* 1, Lastrea montana; 2, Mespilus germanica; 3, Ranunculus aconitifolius; 4, Tellima grandiflora; 5, 6, 7, Saxifragas, which we will endeavour to name next week; 8, Viburnum opulus; 9, Cytisus iconarius.

NECTARINES DEFORMED: *M.*, and *B. & Sons.* The brown spots and cracking of the fruit are caused by a fungus called Glæosporium læticolor. It is now too late to prevent the mischief, which however will not spread, as the fruit is only attacked when quite young. Next year spray with potassium sulphide, just when the fruit is set.

PALM: *F. B., Glasgow.* Palm next week. Black Currant-mite.

PALM AND FIG-FOLIAGE INJURED: *W. D.* The injury is caused by the punctures of mites. Spray, or fumigate with an insecticide.

PEACHES: *A. W.* Peach mildew. Remove every affected fruit and leaf, burning them all forthwith; then dress with flowers-of-sulphur or sulphide of potassium in the manner often described in these pages.

PEACH LEAVES: *Anxious.* The Peach-curl, due to the attacks of a fungus. Spray early in the season with liver-of-sulphur, ½-oz. to 1 gallon of water. Burn the affected leaves.

PEACH-LEAVES BROWNED AT THE TIPS: *N. A. F.* There is no fungus, and we would suggest that something has been present in the water with which the trees have been syringed which is injurious to the leaves. It is at the points of the leaves that water would remain for the greater length of time.

PRESERVING VENETIAN BLINDS ON GLASSHOUSE ROOF: *M. A. C.* Give them a coating of boiled linseed oil followed by one of varnish, and annually afford a coat of the latter. Creosote or Stockholm tar (pitch), might contaminate the rain water, and injure the plants to which it was applied.

PROLIFIED ROSES: *Puzzled.* The gardeners and the Covent Garden people you mention must go about with their eyes closed. The condition is very common. The cause is not so easy to determine. It is probably due to some climatal change, or to an excess of water, occurring at a particular stage of growth, so that the ordinary course of things is interfered with. The flower is naturally a branch arrested in its growth. In your specimen the growth is resumed.

RICHARDIA ELLIOTTIANA DEFORMED: *J. T. R.* A very striking instance of the colour of the spathe invading the leaves. It is of common occurrence in R. africana, and may perhaps be fixed. The accompanying photograph was not suitable for reproduction.

STRAWBERRY PLANTS DISEASED: *T. G.* The roots are injured, probably by some fertiliser used. There is no trace of injury from insects or fungi.

S. HARTLEY. A letter addressed to you at Woodend House, Mossley, near Manchester, as desired, has been returned with the official remark, "Not to be found at this address."

TOMATO FOLIAGE DISEASED: *T. A.* The fungus or mould affecting the plants may be killed when present; or prevented from spreading by means of spores, by a few applications of liver-of-sulphur, sulphide of potassium, at the rate of ½ oz. to a gallon of water. Allow an interval of six days between the applications, and treat diseased and healthy plants alike. If there are ripe fruits on the plants, remove them before applying the remedy.

TOMATO: *A. H.* Not much grown in gardens before the middle of the last century, it being regarded as a not too wholesome fruit, and was seldom or never eaten in the raw state.

TOMATO PLANTS INJURED: *Puzzled.* The roots are healthy, but the leaves are suffering from some deleterious substance present. Apply a slight dressing of nitrate of soda, and use coal instead of coke to heat the flue.

TOMATO, YEAR OF INTRODUCTION INTO EUROPE: *A. Hardinge.* The ordinary type of Lycopersicum esculentum was introduced from South America in 1596.

TREE SHELTER: *A. K. B.* You would find Pinus maritima or Pinaster a suitable tree for your shallow soil. It might be interspersed with Cupressus macrocarpa, common Yew, Sycamore, and common Crab, all of which stand sea breezes without browning of the foliage. An undergrowth of Tamarisk germanica, common Broom, Furze, Privet, Mahonia aquifolia, and common Berberry; and if you have no rabbits on the property, common Holly may be planted. We have no experience of Cedrus atlantica as a wind screen.

VINE LEAVES TURNING YELLOW: *Vitis.* Soak the soil at intervals of four days with a solution of sulphate of iron, 2 ozs. to 3 gallons of water. Four applications should suffice.

WEED IN FIELD: *Milfoil.* Achillea millefolium, not to be despised on a lawn, on a dry soil, and a droughty season.

WOODWARDIA WITH BROWNED FRONDS: *Wusgan.* Some kind of irritant has been applied to the fronds, which we are unable to determine.

COMMUNICATIONS RECEIVED.—J. H. G.—M. Buysmann.—G. B.—J. D.—R. M. M.—W. H. D.—F. Mason Good.—Duckworth & Co.—D. W.—Messrs. Sutton & Sons.—The Editor of the *Gardener*—G. H.—A. B. C.—Duckworth & Co.—W. L. Sydney.—N. E. B.—*The Rose Garden*, by W. Paul, tenth edition.—*Natural History of Plants*, part 12.—*People of the Whirlpool* (Macmillan), G. McClure, St. Louis.—J. B.—J. H. G. (with thanks).—Prof Clos, Toulouse.—F. M. G.—G. B.—J. D.—C. P. R.—T. S.—J. R. P.—R. D.—A. D.—Attwood & Binsted—G.—Expert—A. Cotgreave—D. A. D.—E. C.—S. A.—W. B. H.—H. N.—T. F. P.—C. S. F.—D. A.—A. W. W.—J. L—R. P. B.—W. K.—W. H.—W. H. W.—Wildflower—A. P.—J. P. A.—T. H. C. (telegram)—T. H.—F. De L.—E. B., Erfurt.

GARDENING APPOINTMENTS.

MR. JAMES CLARKE, for the last four years General Foreman under Mr. JOSEPH STONEY, Camp Hill Gardens, Woolton, Lancashire, as Head Gardener to ALFRED FLETCHER, Esq., J.P., Allerton, Liverpool.

Mr. W. CHARLEY, formerly Foreman in the gardens, Sidbury Manor, Sidmouth, Devon, as Head Gardener to E. A. BROOME, Esq., Areley Court, Stourport, Worcester, and entered upon his duties on June 6.

Mr. L. JONES, until lately general Foreman in the gardens, Hartpury House, Gloucester, as Head Gardener to A. W. LEATHAM, Esq., Miserden Park, Cirencester, and entered upon his duties on May 13 last.

Mr. GEORGE REID, for the last four years Head Gardener at The Gables, Surbiton, as Head Gardener to R. J. LAMBERT, Esq., Danes Hill, Oxshott, Surrey, and entered upon his duties on May 12.

Mr. THOS. SIMPSON, temporarily employed in the gardens, Danes Hill, Oxshott, Surrey, late General Foreman for nearly two years at Bolnore, Hayward's Heath, Sussex, as Head Gardener at the Croydon Mental Hospital, Warlingham, Surrey, and enters upon his duties about June 15.

Mr. THOMAS BOWERS, for the past twelve months Foreman in the houses at The Dell, King's Norton, succeeds Mr. BURROWS as Head Gardener at that place.

CATALOGUES RECEIVED.

ROBT. E. ANDEY, Ealing Road, Brentford—Mushroom Spawn.

J. WOOD INGRAM & SON, High Street, Huntingdon—Plants for Bedding-out.

FOREIGN.

DAMMANN & Co., San Giovanni à Teduccio, near Naples, Italy—Bulbs, Roots, Plants, and Seeds for Autumn-planting.

(*For Markets and Weather, see p. x.*)

The Lake in the Grounds at Sandringham, the Residence of H.M. The King.

THE
Gardeners' Chronicle

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GREEN PEAS IN MAY.

ON the occasion of a visit to a famous firm of Pea cultivators in East Anglia a season or two ago, we were told some interesting particulars relating to the use of blue Peas. We were told that these Peas were cultivated mainly for consumption in spring, there being more demand for them at a time when green Peas are anticipated than at any other period of the year. The capabilities of an average restaurant-keeper to combine the qualities of blue Peas with those of soda and sugar in a manner that his customers consider palatable, we were assured, are very considerable. If green Peas are included, therefore, upon a restaurant *menu* during May, or even in the early days of June, the visitor may be pardoned if he is a little sceptical in regard to the age of those Peas, and the exact origin of the tenderness and sweetness that has been imparted to them. It is absolutely certain that in the majority of cases such Peas have been dried in the previous year, or preserved in bottle; the term "green," therefore, being a misnomer.

At the same time, there is a limited supply of actual "green" Peas upon the market during the whole of the month of May, as was proved by a visit we made in that month to the nurseries of Mr. Norman Davis at Framfield, near Uckfield, in Sussex. So far as our knowledge goes, Mr. Davis' indoor Pea culture is the only instance of the kind in England, although a similar method has been practised in the Channel Islands for some years.

An invitation to see—

HALF AN ACRE OF PEAS UNDER GLASS,

from which supplies were being sent regularly to Covent Garden Market, was one we gladly accepted, especially in view of the Vegetable Conference which will be held at Chiswick in September. We had seen the house before; it measures 310 feet long, 62 feet wide (inside measurement), and the centre of its span-roof is 15 feet high. Those who may trouble to multiply the length by the width will soon see that the area of ground is very little less than half an acre. The Peas, when we saw them, were growing in rows, there being fifteen rows running lengthways, which were staked just as garden Peas are usually. The variety was Sutton's Early Giant, and it had grown about 5 feet high—some more, others less. The variety, like Gradus, not being one of the strongest growers, had been afforded considerable space, being rather in excess of that afforded last year, when the variety cultivated was Duke of Albany, which, in Mr. Davis' opinion, is better able to take care of itself. A photograph, reproduced at fig. 143, p. 370, will give an idea of the appearance of the growing Peas, allowing for the quantity of pods already gathered. There is nothing remarkable about it, unless it is that it might serve just as well to illustrate rows of Peas in the open. The reason, of course, is that the indoor Peas are cultivated in the same manner, with the big difference that they are covered with glass.

In several preceding years the ground was ploughed before the seeds were sown; but the plough did not go deeply enough, so Mr. Davis has the soil dug 3 feet deep with spades, throwing out a trench of this depth at one end of the house, and working to this, burying a good layer of dung at the same depth as the work proceeds. Some varieties of Peas root very deeply, and some (as the Duke of Albany) easily find the manure at this depth; but in the case of Gradus, and similar sorts, experience shows that 2½ feet would be sufficient—perhaps even better than 3 feet. In order that the crop may be ready at the time judged to be most desirable, the seeds are sown at the end of January, and care is taken to give every plant equal room to develop.

The soil at Framfield is good, and the manure supplied at the time of digging is sufficient to keep the Peas growing strongly until they commence to flower. They are then watered with drainings from the cesspool, and as the Peas begin to "swell," are fed with a guano containing thirteen per cent. of ammonia. Mr. Davis believes that Peas do require nitrogen to be afforded them, notwithstanding that which they have been proved to be capable of obtaining for themselves from the atmosphere, and declared that one season when he gave the crop both nitrate of potash and sulphate of ammonia the result was excellent. It is not that Leguminous plants are not benefited by the supplies of nitrogen artificially afforded, but that they are not benefited so much in proportion to other plants similarly treated. The nitrogen is useful, but not so essential in fact.

THE FIRST PEAS

were ready for market this year on May 1, when 21 lbs. were despatched to market. This is considered quite early enough to get good prices, but the seeds could be sown earlier if an April crop were wanted. They are sent in cross-handled baskets, each of which contain a peck of 8 lb. Picking is done early in the morning or at night, whilst the pods are firm and plump. In hot weather they become flabby before midday, and if gathered in this condition will not regain an appearance of freshness, being consequently less attractive. Any root-waterings that are necessary in the house are done in the afternoon, after which the house is closed, and the atmosphere becomes sufficiently moist to steam the glass over. This is very beneficial to the health of the plants, but beyond this they have no compensation for the washings with rain the crop usually gets out-of-doors, for syringing is not practised.

In respect to the prices the produce commands in the market, we have exact knowledge obtained from a perusal of Mr. Davis's books. The highest price fetched this season (until May 28) was 1*s.* 9*d.* per lb. in the pod, and the lowest, for a few pecks of "seconds," 1*s.* 3*d.* per lb. The average price was fully 12*s.* per peck, and always several pence per pound higher than that fetched by the Channel Island Peas. The amount which had been already sent to market was 1 ton, and there would probably be nearly a half-ton to follow; but estimating the remainder of the crop to be but one-quarter ton, and the prices to remain the same, this would show the value of the crop to be—

WORTH OVER £400 AN ACRE.

There are few vegetable crops, we imagine, that will yield this amount. In estimating the expenses of cultivation, it must be remembered that there is no expense whatever for heating the structure. There are water-pipes in the house, but the stoke-hole has been disconnected, and is being used for a purpose totally different. The charge for conveying the produce to London by rail is very little indeed, compared with the value of the crop. The freightage is felt more acutely in the middle of the Tomato season, when the wholesale value of the Tomato crop is worth only 4*d.*, or even 3*d.* a pound. To what extent there would be a demand for Peas at 1*s.* 6*d.* a pound in May we do not know, but that it is already more than equal to the supply is obvious.

Any of our readers who may be disposed to take a leaf out of Mr. Davis' book may be reminded that equal success would be impossible in or near to London, or in any other locality that has not the somewhat exceptional conditions of the very rural, high-lying district of Framfield. There is there a relative abundance of light, clear, dry air, and sunshine. In the month of February, even, when the young plants are scarcely through the ground, there are periods of good weather at Framfield, and it is possible to open the ventilators of the

house, admitting fresh air, at a time when London may be submerged in fog. Mr. Davis has grown Peas in the manner described for five or six years, sometimes using one variety, sometimes another, and with similar average results. Dwarf Peas have been grown as well as tall ones, but all are tall this year. An exception to the general crop of Early Giant is one row of the new Pea Edwin Beckett. Perhaps it would be practicable to grow crops of Spinach or

EARLY CROP OF SWEET PEAS.

Not only does Mr. Davis cultivate early crops of culinary Peas, but he has supplied the market since May 20 with a good quantity of excellent Sweet Pea flowers, in the best colours he can get. The house containing these is 200 feet long, and about 20 feet wide. There are three rows of Peas running from end to end of the house. The photograph at fig. 144, p. 371, taken for us on May 29, will show how well the

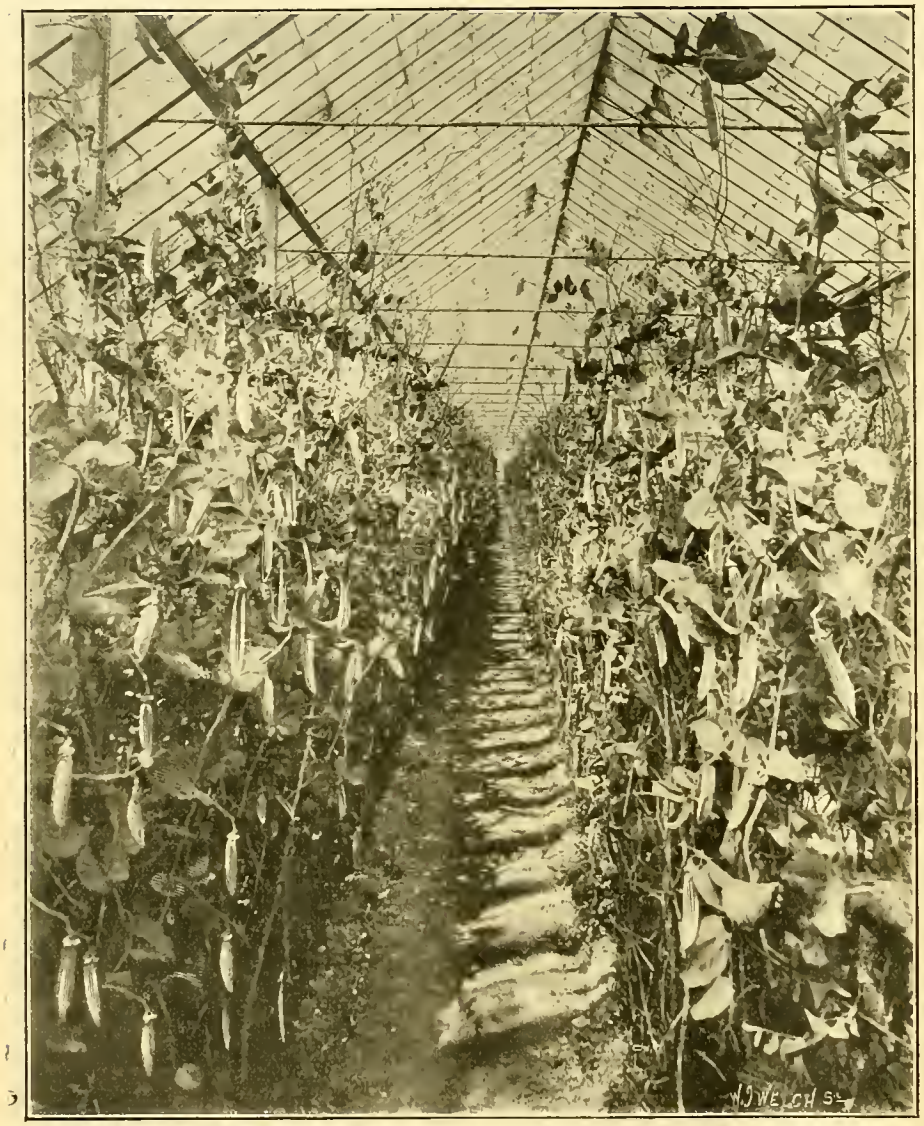

FIG. 143.—CULINARY PEAS IN MR. DAVIS'S NURSERY IN MAY. (SEE P. 369.)

Lettuces between the rows of Peas in the house, just as is done outside. In some seasons Mr. Davis has had three successive crops in the house in a year—Peas, Tomatos, and Chrysanthemums; but there is some overlapping in that case, and this year the Chrysanthemums will follow the Peas. Many of the Chrysanthemums will be planted-out, and even some of the exhibition sorts in pots, as Madame Carnot and its varieties, will be brought indoors as early as August, that the wood may become thoroughly ripened.

plants were growing and blooming. There would have been a more abundant display of flowers if the packers had not removed on the preceding day all that were then ready. In this case the seeds were sown in pots, and the plants were transferred from the pots to the ground at the end of the month of March. For market purposes, Mr. Davis cultivates the best varieties of each colour rather than a collection, and he is doubtless right. Some of them may be "hooded," but in such cases the varieties possess compensating qualities, such as length of flower-stem, and freedom of growth and flower. The length of the flower-stem is particularly important, for when it is long and stout, the flowers may be used for purposes of decoration very much more conveniently. Of blue flowered varieties, Mr. Davis had Navy Blue and Captain of the Blues, but considers the former to be very much the better one; Salopian and Mars represents the deep reds, but Mars is greatly preferred; Sadie Burpee is the chosen white variety, for admitting the superiority of the blooms of Emily Henderson, this latter variety does not give sufficient return. Lady Mary Currie, salmon colour, and Gorgeous are included; and Triumph, of bright pink colour, is regarded as one of the most satisfactory in any colour. Of cream-coloured flowers there are Mrs. Eckford and Mrs. Ormesby Gore; and in mauves, none can rival the much admired Lady Grisel Hamilton. Dorothy Tennant is grown, but care is taken to bunch this variety by itself, or to associate the flowers with others of quite a different colour, as the creams or whites.

No stakes are used for the Sweet Peas. Strings of galvanised wire are drawn at distances of a foot, on either side of the row, and stout wooden posts are sunk at intervals to strain the wire around and hold it firm. When the growths become long, and may blow about, strings of raffia are slung across the row from wire to wire, and this affords an extra degree of stability. From a glance at the photograph the effect of this system may be better understood. It is very neat and perfectly satisfactory.

A considerable crop of Grapes and a large quantity of Tomatos go to make up the work done at Framfield. It is therefore obvious that Mr. Davis, who is known primarily as an expert Chrysanthemum grower, is really an "all-round man," to use a favourite expression amongst gardeners, and in the cultivation of early crops of vegetables, can give a lead to most of his colleagues. Making no secret of his methods, nor of the results that follow, he deserves success.

NEW OR NOTEWORTHY PLANTS.

EUPHORBIA PHILLIPSIÆ, *N. E. Br.* (*n. sp.*).

HERE is another of the many interesting novelties introduced from British Somaliland by Mrs. Lort Phillips, and successfully cultivated in the Botanic Gardens, Cambridge, under the able management of Mr. R. I. Lynch, to whom Kew is indebted for the specimen from which the following description was chiefly made. It is a very distinct species of dwarf habit, with succulent ribbed stems, beset with closely placed pairs of long straight spines, and bears small clusters of yellow flowers, which are remarkably small for the size and nature of the plant.

Plant about 6 inches high, branching, glabrous. Stems and branches, excluding the spines, ¾ to 1¼ inch thick, nine-ribbed, bright deep green, not at all glaucous. Ribs with acute grooves, about 1 lin. deep between them, subtuberculate. Spine-cushions crowded, almost touching one another, 1½ to 2½ lin. long, oblong, obtuse at both ends, hard, dark chestnut-brown; spines in pairs, diverging and horizontally extended or slightly deflexed, 4 to 8 lin. long when fully developed, but on some parts of the stems only ½ to 1½ lin. long, straight, rather slender, dark chestnut-brown. Rudimentary leaves represented by

minute broad deltoid acute points about ⅛ lin. long, of a lighter brown than the spine-cushions. Inflorescence sometimes of one, but more usually of two to four involucres, in sessile axillary clusters. Bracts ⅛ to ⅜ lin. long, oblong, concave fringed at the subtruncate apex, membranous, pale brown. Involucre subsessile, about 1 lin. long, and nearly as much in diameter across the glands, but only about ½ lin. in diameter below them, cylindric-campanulate, green, glabrous, bisexual, or sometimes male only; glands five, spreading, somewhat unequal, transversely rounded-oblong, ¼ to ⅜ lin. broad, entire, light orange-yellow; lobes alternating with the glands short, membranous, fringed. Stamens much exserted; filaments whitish; anthers yellow. Ovary exserted and reflexed, obtusely trigonous, glabrous, indistinctly and very minutely papillate-tuberculate, green, tinged with reddish; style-arms ⅜ to ¾ lin. long, bifid at the apex, with spirally-coiled branches. *N. E. Brown.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUMS FROM WESTONBIRT.

A HOUSEFUL of grandly grown varieties of Odontoglossum crispum in Capt. G. L. Holford's fine garden, near Tetbury, must be a fine sight, if we may judge by the examples of their flowers sent to us by Mr. Alexander, his Orchid grower. The blooms are about 4 inches across, and all have the broad segments, fringed petals, and fine substance, so much admired in these favourite flowers. Most of the flowers are of the large, unspotted type, some are tinted with rose, and one has entirely rose-purple sepals and petals, with minute dark purple spots. Two of the varieties have prettily spotted sepals and lip, and all are so beautiful that they easily account for the popularity of Odontoglossum crispum. One very large richly spotted O. × Andersonianum, but for the form of its labellum, might easily be taken for an O. crispum; and a flower of the pure white and orange form of Dendrobium Devonianum, a pretty hybrid Lælio-Cattleya × (white L. purpurata × C. Schroderæ), and a secondary hybrid of L.-C. × Hippolyta (Phœbe × C. Mossiæ), are also handsome and distinct.

ANGRÆCUM SESQUIPEDALE.

To Prof. Henriques, of Coimbra, we are indebted for a sketch of a flower of this Orchid in which the two lateral sepals are joined together, and shifted in position so that they become opposite to the upper sepal. The two lateral petals form another pair, crossing the sepals at right angles, and the lip with its spur is absent. This is another illustration of a very common malformation in Orchids, wherein the parts of the flower become arranged in twos. Why—this deponent saith not.

NOTES ON THE SEASON.

So far as it has gone, the season has been disastrous in many respects, but more perhaps in respect of fruit-tree blossom than of aught else. Of Plums and Pears there are scarcely any, and not much better is the Apple crop, the flower-buds being killed whilst still closed. It is not so much in the cultivation of our fruit-trees that we have difficulty; we can grow the trees very well. It is the capricious nature of the spring which brings vexation of spirit. For two years in succession we have been dependent on a very slight return from our trees, and we are precluded from entertaining any substantial hope that another season will be any better! Gooseberries and Currants are gone. With Raspberries we may fare better. Strawberries with me are in fine flower, and the foliage healthy; if no further frosts should come, they will be the only redeeming fruit crop in my garden. To supply the deficiency, much of our money will again have to go to enrich our friends beyond the seas.

Many flowering plants have also been destroyed for the season. The flowering shoots of Weigelas have been completely destroyed, and have had to be cut hard back, so as to form growth for another year. The unopened flower-buds of many varieties of hybrid Rhododendrons have been killed, as have also Azalea pontica and other species. Lilacs have not escaped, and the flowers open irregularly: Marie Legraye appears to have suffered the worst; Madame Lemoine and alba grandiflora have fared better, but they are not flowering nearly so profusely as Marie Legraye.

Roses have suffered severely, but the plants which happened to have been pruned late are doing well. Notwithstanding the cold weather we have experienced, caterpillars seem to be busy all round. On April 7, I saw in my grounds a Peacock-butterfly (Vanessa Io) flitting about from flower to flower; no doubt it was one which had successfully hybernated in some snug place.

Plants which have come under my notice and have apparently taken no harm are Viburnum Opulus, the garden varieties of which are now opening in the most liberal fashion. I have planted Viburnums freely along the banks of my little streamlet, and they will be lovely when in flower, and quite as lovely again when in fruit in the autumn. In the bank of this stream, a pair of Kingfishers have made their nest, and this they did, notwithstanding the close proximity of the busy Rugby and Birmingham Railway, and at the same time to make matters even more noisy, a gang of fifty or more navvies were set to work to re-lay a piece of the line opposite the place where the birds made their nest. Of this they took no notice, nor of the detonating cartridges which were let off on the approach of every train. I felt inclined to say something more on the beauty of those lovely birds which have come to make their home with me; but as these are only "notes" on a few plants, and not on that of ornithology, I will go back to my text. The pink "May" is in really grand flower, but white May throughout this neighbourhood is unusually thin; this is not in my opinion on account of the frost, but from the want of flowering buds, which through some natural physiological cause were not formed, therefore were not there to open.

Purple and other ornamental varieties of Beech have already made splendid healthy growth. Last year purple Beeches all round this neighbourhood were seriously injured by the May frosts, from which they never recovered last year; now, however, they appear to be making up for it. Trees with me of Cerasus Padus (Bird Cherry), are now in fine flower. This is really a fine tree, free in growth as in flower, and it is deserving of being more liberally planted.

Notwithstanding the cold backwardness of the season, and whilst admitting that we have had irrecoverable losses amongst our fruit for this season, yet the few really fine days we have had so far have improved the general appearance of the country. We have all the beauty of its newly expanded leafage of many tints, the grassy glades and copses freely besprinkled with wild flowers. The thriving state of cereal and fruit crops on some of our best managed farms, show that we have not lost everything; but I feel constrained to think that the proposed gardeners' dinner would have come off with much better *éclat* had it taken place in a bountiful fruit year. A good many were of opinion that the opening of the Royal Horticultural Society's new Hall offered the best opportunity for gardeners to dine together, for there, besides their dinner, they could also have enjoyed both music and dancing (!) Why are the London gardeners in such haste to dine? If the dinner proves a success, and there is no reason that I know of why it should not, the probability is that gardeners may express a desire to again dine together on the occasion of the opening of the new Hall, when if speakers like Lord Carrington and others, who made such felicitous and sensible allusion to gardeners and gardening on the occasion of the annual dinner of the Royal Gardeners' Orphan Fund (see *Gard. Chron.*, May 9, p. 296), do so again, then some good will be done, and these festive gatherings will not be called together for nothing. *W. Miller, Berkswell.*

FIG. 144.—SWEET PEAS IN MR. DAVIS'S NURSERY IN MAY.
(SEE P. 370.)

NOTICES OF BOOKS.

THE CULTIVATION OF THE TOMATO.

IN this little work, by a Tomato specialist, the reader unacquainted with the subject of which it treats, will find much to interest him in regard to the cultivation of the plant, and the special manures suitable for increasing the yield of fruit. Stress is laid upon artificial in preference to animal manure. The Tomato being especially liable to a variety of fungous diseases, which spread rapidly when plants are grown in close approximation to one another, the author insists on the need of a soil free from all germs and spores; and as a means of sterilising soils, more especially those which have been already used in the cultivation of Tomatos and other plants under glass, he recommends the application of steam, which not only kills all germs, vegetable and animal, but has the effect of rendering the manure in the soil readily available for the use of the plants. A metal flower-pot is recommended, and is said to have many advantages over beds of soil in the cultivation of the Tomato. The supply of water, and the entire routine of the cultivation of the plant under glass, are treated of in brief paragraphs. With regard to the "black spot" malady, we notice a curious remedy for it, namely, to tap the stem or the trellis, and thus dislodge the dead flowers, which are said to be the cause of the spread of the disease. The flower drops very readily the day after it has faded, but later it sticks more tenaciously to the fruit. Open-air culture has about two pages to itself, and we find the author recommends the use of kainite, muriate or sulphate of potash, and sulphate of ammonia in conjunction with farmyard manure—a practice we believe to be fraught with good, as has been proved at various experiment stations in the United States of America. The brochure is published by Robert Holmes, F.R.H.S., Tuckswood Farm, Norwich.

"A WOMAN'S HARDY GARDEN." By Helena Rutherfurd Ely, with illustrations from photographs taken in the author's garden, by Prof. C. F. Chandler. (New York: The Macmillan Company; London: Macmillan & Co.)

IT is quite a relief to open a book about a woman's garden, and to find that it really deals with the subject of the title, keeping the "two fat and fascinating babies," well in the background. Further, the hardy garden is on the other side of the Atlantic, and so offers a certain element of freshness to untravelled Britons. The writer's style is clear and terse, and though we may not appreciate her arrangements as described and pictured, she proves her right to carry out her own ideas. Such plants as withstand the climate to which Mrs. Ely's garden is exposed, are perfectly hardy in England also; in fact most of them are quite familiar friends here, and indeed, flourish even more luxuriously. The plot is no small one, and the harvests of bloom reaped from it are correspondingly large. The author has a liking not merely for cut flowers, but for growing flowering-shrubs for the sake of effect. She would have her flower-beds close up to the windows and well in view. She says: "I should not advise making all the borders around a house alike. The easterly one would be most lovely if planted with tall Ferns or Brakes, taken from near some stream in early April, before they begin to grow. These will become about four feet high if you get good roots, and keep them wet. Plant in among them everywhere, Auratum Lilies, and you will have a border that will fill your heart with joy. On the north side of the house it is not possible to have much success with Vines, as they need the sun. They will grow, but not with great luxuriance. Here plant two rows of the common Rhododendron maximum, which grows in our woods. I crave pardon for calling it 'common,' since none that grows is more beautiful." From this brief extract our readers will see that Mrs. Ely's pages may stimulate American ladies to fresh interest in horticulture, which she considers on the whole to be neglected by them, but as regards English gardeners, as she herself says of our books across the Atlantic, "beyond the suggestions for planting, and the designs given in the illustrations, not much help is to be derived in this latitude from following their directions." The illustrations in the volume before us show a well-stocked garden, but no specially original effects nor luxuriance. In fact, such a homely pleasant plot as suggests congenial work and welcome rest.

THE GARDENERS' COMPANY.

WHERE is the Gardeners' Company? What is the Gardeners' Company? and what does it do for gardening? are questions which might very reasonably be asked by the horticultural community. Strange to state, no mention is made of the Company in that exhaustive work of comparatively recent date, *Old and New London* (Cassell & Co.). The present Lord Mayor of London is the Master of the Company, and a new Clerk has just been appointed. It is said that "the London Gardeners' have existed as a mystery for considerably more than three centuries, but not until 1605 did they receive from James I. the Charter by which they were entrusted with the conduct of the 'trade, craft, or mystery of gardening.'" The new Clerk, on appointment, finding there were no records of the Company in existence prior to 1764, instituted a search at the Guildhall: an old chest was discovered, and in it records in chronological order, which tells the story of the Guild from the time its Charter was granted until the accession of George III. The charter granted by James I. was in the names of "the Master, Wardens, Assistants, and Commonalty of the Company of Gardeners of London." Though this Company is incorporated by charter, yet it has neither hall or livery. It is governed by a Master, two Wardens, and eighteen Assistants; and its meetings are held at the Guildhall, though in ancient times in other City halls.

The recovered records contain among other documents a full contemporary statement of a Chancery suit in 1623, between the Gardeners' Company and Thomas Sambry and other poor gardeners in or near the city of London, the occasion of the trial probably being the right of the Company to demand tolls for landing goods on the banks of the Thames. It is likely this case was decided against the Company, as in the month of August, 1777, the City took action against the market-gardeners on the same ground; in this case, for landing their goods at Blackfriars Stairs. The cause was determined in favour of the gardeners.

It would also appear from these records that in the reign of James II., the Company held land on what was then known as the Bermondsey Estate, as some extraordinary summonses were issued calling upon the Company to "cast and cleanse to the ancient breadth and depth of their part of the sewer." The accounts of the Estate show that at the period just mentioned the Company had ten tenants at Bermondsey, probably market-gardeners. It is not stated whether the land in the occupation of the tenants was the freehold of the Company or not. Perhaps some of the land was cultivated as Cherry-orchards; a present-day thoroughfare in Bermondsey is that known as Cherry Garden Street, and it is the site of an old Cherry-garden, which was a place of fashionable public resort in the days of the Stuarts. Pepys, in his *Diary*, under date of June 15, 1664, makes this entry: "To Greenwich, and so to the Cherry Garden, and thence by water, singing finely, to the bridge, and there landed." Charles Dickens makes allusion to the Cherry Garden in one of his works.

In the beginning of the year 1700, attempts were made, so the chronicler states, "to restore the cultivation of the Vine, which, whether from the inauspicious climate of our island, or the want of skill in the cultivator, was at that time nearly lost; although there are authentic documents to prove that vineyards did flourish in this country in ancient times." That vineyards were customary adjuncts to religious houses is a well known fact, and it is to the discontinuance of these the chronicler probably refers. The restoration of vineyards at Bermondsey and in adjacent places was largely fostered by a gentleman named Warner, who observing that the Burgundy Grape (probably the Black Cluster) ripened early, procured some cuttings, which he planted in his garden at Bermondsey, and trained them as standards; and though the soil was not favourable, yet by proper care and cultivation, his fruit became so matured as to yield good wine, his vintage was so ample that he obtained one hundred gallons annually. Other vineyards in Surrey and Middlesex were formed from cuttings supplied from Warner's vineyard.

The feasting which is supposed to be inseparable from City Companies was not an exception in the case of the Gardeners' Company. A dinner bill, dated June 22, 1692, shows that most of the Court of Assistants dined at the Dolphin, Lombard Street, on that date, at a total cost of seventeen shillings, probably an insufficient sum to pay for an individual diner at a company's banquet in these days. *R. D.*

AZALEA INDICA ALBA.

IN the variety grown in gardens under the above name, we have a plant of more general value for decorative purposes than almost any other of the genus, and one which, in the warmer parts of England, Scotland, and Ireland, proves hardy out-of-doors when planted in a peaty soil and in sheltered places.

Azaleas, when cultivated in pots and tubs, can be brought into bloom by suitable treatment from November till May. The plant shown in our illustration (fig. 145, p. 373), is growing in the gardens of Mr. A. G. Hubbuck, of Elmstead Lodge, Chislehurst, Kent, is forty years old, and as the gardener, Mr. J. E. Poole, tells us, it flowers every year, which itself is evidence of good health maintained by careful culture all those years. Tastes differ greatly in the matter of the training of Azaleas, and many of our readers would prefer a less rigid style, and one that is more in accordance with the rather spreading habit of the plants.

FORESTRY.

ANNUAL RINGS IN TIMBER.

I THOUGHT the editorial note appended to "H. J. C.'s" letter, May 2, suggested the explanation asked for on this subject. Examples like that sent by "H. J. C.," are the rule rather than the exception. Trees, especially hardwoods, produce the most and the biggest branches on the side where there is most light and shelter, and consequently, lay on most timber on that side in the shape of broader rings which run down the trunk on the branched side, and extend into the roots. And this applies to limbs as well to trunks. There would, no doubt, be most branches on the upper side of the limb referred to by "H. J. C." In the case of the Oak, the pith ring is seldom in the centre, and people accustomed to see timber felled can often tell, while the tree is standing, about where the pith

Fig. 145.—Azalea indica alba, growing in the gardens of A. G. Hubbuck, Esq., Elmstead Lodge, Chislehurst. (see p. 372.)

ring will be found. I have an ordinary old Oak stump in my garden, cut from the bottom of the tree, close to the ground. In shape the bottom section is like a rough triangle with the corners rounded off, and the pith ring is about 2½ inches from the bark at one corner, and about 7 and 10 inches respectively from the other two corners. The two main projections, or corners, were caused by two big roots at the base of the tree and projecting above ground, and these roots were produced by corresponding limbs growing above on the same side of the tree. The rings are the same in number all round, but much broader on the bulging sides, and they are not circular but triangular in shape, especially near the outside. The common Thorn manifests a strong tendency to be one sided. I have seen a thick rope-like ligature running down one side of the trunk for nearly 5 feet from where a strong branch had pushed up to the light. Evenly-branched Firs have usually the most evenly balanced rings in the trunk; and in hardwoods, with evenly balanced tops, the annual rings are also more regular, and the trunks round. In the Oak stump referred to, the pith ring would originally be near the centre, but as the tree grew up and developed limbs on one side, it would be left. Between the pith ring and bark the rings are closely packed and thread-like, while on the thick side they are four to the inch in some places. Sections of the trunk of old hedgerow trees are often like this, and rough and unshapely. Numbers of such trees are to be seen in sawmill yards. *J. Simpson.*

MARKET NOTES.

METROSIDEROS FLORIBUNDA.

Messrs. Hugh Low & Co., Bush Hill Park, Enfield, make a specialty of this plant for their trade. Upon walking through Covent Garden Market lately, I was reminded of this plant, by specimens from Mr. Moon, of Swanley, who informed me that this season he will only have fifty flowering plants, now selling at 3s. 6d. each in 32's, but he will have four times this quantity for next season. There is a demand for plants about 18 inches high, with numerous flower heads. The plants may be grown well in a cool house. The young side-shoots may be rooted now under bell glasses, in pits or frames. [The usual season for striking cuttings is in autumn. Ed.] Pot them on as they become ready, and some will be fit for sale in 48's the following May; but plants two years old are those most valued. Metrosideros are very impatient of fire-heat, but they must be guarded from frost.

Rose Mrs. John Laing, H.P.

This Rose, now sixteen years in commerce, is one of the best that is put on the market, either as a pot plant or as cut flowers; and were I asked to name any one Rose for general market purposes, I should name this variety. For some weeks past the supply of pot plants and cut flowers on long stalks has been very large. Recently I observed at Mr. C. T. Kirby's Rosemont Nurseries, North Finchley, 900 plants, and all in pots, arranged in one bed along the middle of a span-roofed house. These plants were practically all sold to order, which shows the large demand for this variety. The prices obtained do not exceed 30s. per dozen plants.

Mr. Kirby's Rose-houses are shaded with a mixture of flour and sour milk splashed over the roof. Much water is required in bright weather, and artificial manure in small quantities is not omitted. Present appearances point to the season being a good one for the grower of pot plants, and the marvel is to where they all go.

Pelargoniums.

The season is now in full swing for the above plants, and a good trade is being done at prices ranging as high as 12s., and even 15s., per dozen. Having for years had a special interest in the cultivation of Pelargoniums, it does me good to find several of the old varieties still in demand. It is a difficult matter to select the best, and as each grower has his favourites, there are plenty from which to select. It will also be of interest to the readers of the *Gardeners' Chronicle* to know that one grower alone sends to Covent Garden Market yearly 10,000 plants, grown in 4½-inch pots. In a list in our Notices column in this issue, No. 6 just now is fine for cutting; 15 is an especially fine pink-coloured flower; 25 is one of the best of the latest flowering varieties, and it always commands a good price. *Stephen Castle.*

VEGETABLES.

RADISH WHITE ICICLE.

This long, white-skinned variety affords a contrast when served with the red-skinned varieties. It is as the name suggests, deliciously cool and crisp; much more so than the red-skinned kinds, and although the colour may not appeal to many, it is on account of its crispness a desirable variety to grow. Where a supply of these roots have to be maintained the year through, it is just as suitable as the red Radish, comes in as quickly, and remaining fit for use much longer. It is offered by Messrs. Veitch of Exeter. *Paul T. More.*

The Week's Work.

PLANTS UNDER GLASS.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Pot Roses.—These plants should have a sunny aspect out-of-doors, and not be allowed to suffer for lack of water. The flower-buds on plants required for forcing next spring should be removed, and if it be considered necessary, the plants should be repotted in good turfy loam, having a small portion of decayed manure intermixed. If the loam is deficient in fibre, a small quantity of charcoal should be added. Before repotting a plant, let much of the exhausted soil be removed from the ball, and put the plant into the same sized pot as that it came out of, making the soil fairly firm with the potting-stick. Employ clean pots, and good drainage. If the potted plants can be placed in a cold pit for two or three weeks afterwards, they will soon recover, if syringed twice or thrice daily, and are not afforded much water at the root. If there is no pit accommodation, arrange the plants on the north side of a wall for a month, affording like treatment, then place them in a sunny position, plunging the pots in coal-ashes. The variety Maréchal Niel is best cut hard back after flowering, and strong young growths encouraged from the base. These, if well ripened, will push flower-buds at almost every joint, if brought along quietly from the end of the month of February. Those not requiring repotting should be afforded manure-water twice a week, and the entire stock should be syringed occasionally with Quassia-extract, to keep aphis in check, and be dusted with flowers-of-sulphur should mildew appear on the plants.

Roses in Beds or Borders.—Plants thus treated yield a quantity of bloom throughout the summer, if the treatment is good; and such varieties as climbing Niphetos, Pauline Labonte, Madame Lambard, W. A. Richardson, Madame Van Houtte, Sunset, and a few others; but green-fly must be kept under, and abundance of water afforded at the root, in order to obtain the best results.

Campanulas. — C. calycanthema (Canterbury Bells) make a nice show in the greenhouse during the month of June, but they must be a year old from the time the seed is sown, which should be in May or early in June, and the seedlings should be pricked off, and later planted on rich ground, potting them up in October or early in November. Plants which show flowers should be liberally manured, and they are best when kept in the open air till the flowers begin to expand. The variety pyramidalis requires similar treatment, and is most useful during the months of July and August. Keep the spring-sown plants growing by frequently repotting them; an 8 or a 10-inch pot is a suitable size. The stock of plants may be stood out-of-doors now. Some gardeners plant these out, and pot-up early the next spring; but I have had the best results from both varieties, blue and white, by keeping them in pots till they flower. Some do not flower till the second year; those are potted on in October, and make large plants the succeeding summer.

THE HARDY FRUIT GARDEN.

By Chas. Page, Gardener to J. B. Fortescue, Esq., Dropmore, Maidenhead.

The Strawberry Beds.—The fruits are now in south country gardens developing fast, and on soils that are light or sandy the plants should be afforded water copiously. Any plants which were forced early, and were afterwards planted, should receive water during dry weather. If red-spider be observed on the plants, let them be syringed with a mixture of soft-soap at the rate of 4 oz. to 1 gallon of water, to which a pinch of flowers-of-sulphur is added. Late Strawberry plants set out on north borders should be mulched with long litter. The variety Elton Pine is an excellent fruit at Dropmore, though on most kinds of soils Laxton's Latest-of-All is hard to beat as a late Strawberry.

The Apricot.—The trees are now recovering a little from the check caused by the frosts in April, and such fruits as were uninjured are growing in size freely. Remove every blistered and curled leaf; and foreright shoots, if growing freely, should be pinched back to three or four leaves from the base, whilst shoots required for extension should be secured to the wall, plenty of room being left for growth in thickness.

Cherries.—The wall-trees bearing fruit should now have the nets put over them, the fruit having begun to colour. It is a good practice to go over the trees before the nets are put on, and if black-aphis is present on the tips of the young shoots, to remove these, and burn them forthwith, it being almost impossible to rid the shoots of the insects when the leaves are curled up.

The Morello.—Let the trees be well syringed about 4 P.M. on fine days, and use a weak insecticide once a week.

FRUITS UNDER GLASS.

By T. H. C.

Muscat Vines.—To ensure the best quality in the fruit, it is necessary to maintain a dry atmosphere in the vinery after the berries have attained to their fullest size, and are colouring freely. Water having been applied to the border some time previously, no more will be needed until the crop is cut, excepting in the case of very shallow borders; but to prevent undue evaporation from the soil, a thick covering of dry, short grass or hay should be put on it. At this time red-spider often injures the foliage, and measures for its destruction, as previously advised, should still be carried out. Keep the lateral growths closely pinched at the points, so that the principal leaves may have both the light and space they require. White Grapes generally require less shade than black, and if the foliage is well regulated, it will afford all the shade necessary during the ripening period. Tying back the foliage to expose the bunches to the light is sometimes resorted to, in order to hasten the colouring of the berries, but this practice is often attended by scorched berries, and is not necessary to ensure good finish, provided other cultural requirements are correct. A temperature of 70° by night, and 10° to 15° more by day may be applied, with ventilation by night and day, and regulated by the conditions of the weather.

Succession Vines with fruit at the stoning stage, or approaching thereto, should never lack moisture at the roots; and manurial aids may be afforded at each time water is applied to old Vines, and those bearing heavy crops of Grapes.

Sulphate of potash at the rate of 1½ to 2 ozs. to a square yard is an excellent manure at this stage; and if the foliage is lacking in colour and substance, usually indicative of the strain of heavy cropping, nitrate of soda at the same rate may be applied, and in each case carried down to the roots with tepid water. Stop lateral growths, maintain a moist atmosphere, and ventilate as usual.

Madresfield Court Vines.—Sometimes the berries of this variety crack just when they commence to colour, but the evil may be entirely prevented by maintaining the vinery in a drier condition, and by affording constant ventilation night and day. Damping down should be carried out during the day when there is the fullest ventilation, but at no other time.

Early Vineries containing Foster's Seedling and Black Hamburgh in a ripe state, if the Grapes are not required for immediate use, may be shaded in order to preserve the berries fresh-looking and plump. If perfectly ripe, artificial heat is not needed, excepting perhaps at night, and to dispel superfluous moisture.

Late Vineries.—The thinning of the bunches will now be in full swing. This work must be closely followed up and finished before the berries attain to a size larger than a Pea. Bunches for keeping till late in the winter require to be rather more severely thinned than those for earlier consumption, and it is well to cut away all berries from the centre of the bunches, and form middle-sized, compact bunches. Stop lateral growths, tie down the principal shoots, and keep a sharp look-out for, and deal with, insect-pests as previously advised.

THE KITCHEN GARDEN.

By John Fleming, Gardener to Sir C. Pigott, Bart., Wexham Park, Slough.

Mushrooms.—Beds now yielding good crops should be afforded tepid water copiously when dry, using for its distribution a fine rose watering pot; and occasionally farmyard liquid-manure. The Mushroom-house cannot be kept too cool at this season, and air must be admitted without letting in much day-light. Any beds in the open in bearing should be examined frequently, removing the more decayed parts of the litter, renewing it with that which is fresh, covering the beds closely so as to retain heat, and prevent over-much evaporation of moisture from the materials. Syringe the litter twice daily, and keep a close watch for slugs.

Turnips.—A good breadth of land may now be sown for affording bulbs in early autumn, sowing if possible in showery weather; but if the weather be dry, let water be applied to the seed drills before the seed is sown. Turnips should be grown in a cool shady part of the garden, and over the bed there should be stretched several thicknesses of fish-netting to afford shade, which should be kept over the plants till they are in the rough leaf. Veitch's Red Globe is one of the best Turnips for present sowing. Thin out earlier sowings with the draw hoe, chop out the plants into clumps at from 8 to 10 inches apart when in the rough leaf, and shortly afterwards single them with the short-handled hoe and the fingers, to 10 inches apart. Afford earlier crops water when the ground is getting dry, and dress the plants at intervals of three or four days with soot and wood-ashes, and once a fortnight apply some small quantity of bone-meal or superphosphate of lime. Stir the ground frequently with the Dutch-hoe. As soon as the bulbs of the early crops are of good size, let them be pulled and etored in a cool place, as if left in the ground at this season the flesh soon gets hot and stringy.

Leeks.—Those plants of the early sowings raised under glass which were planted in trenches, will need to be earthed-up or otherwise blanched, and well supplied with water at the root. Brown paper collars cost but very little, and stiff brown paper will do almost as well if tied loosely round the stem, placing a stick on each sido of the bandage so as to secure it. If earth be used, it should be pulverised and placed round about the stems once a fortnight. The plants from later sowings should be planted in trenches, making double rows, or they may be planted on the flat on heavily-manured, deeply-dug ground. The holes should be made with a dibber quite a foot deep, and the plants placed at the bottom, so that the tops of the leaves are level with the surface. As the plants grow, gradually fill up the holes, and keep the plants well supplied with water.

Peas.—A sowing may be made of a late variety in well prepared trenches as previously advised, for unless much care be bestowed on Peas sown at this date, the returns are unsatisfactory, unless early or second early varieties are sown. See to the staking and mulching of Peas that are showing well above the ground, and apply liberal supplies of manure-water to the earlier Peas in bearing.

Broad Beans.—A small sowing may be made if Beans are required late in the season. Afford support to the plants, if tall, by driving in stout stakes about 2 yards apart on each side of the rows, stretching soft string along from stake to stake. If the weather be dry, apply water copiously, varying this occasionally with liquid-manure.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury

Vanda teres.—It is seldom one sees this beautiful plant grown to such perfection as those which were exhibited at the late Royal Horticultural Society's Show in the Temple Gardens by Mr. Reynolds. The blossoms last for a considerable period of time when left on the plant, provided it is placed in a warm, well-ventilated shady house when the flowers are mostly expanded, and water is applied at the root. Plants which flower profusely usually shrivel considerably, but the plants quickly recover when returned to growing quarters. As soon as the flower-spikes are removed, repotting, if needed, may be carried out. It is a good practice to fasten the stems of the plants to Teak-wood stakes of sufficient length to afford space for one or two seasons' growth, and place five or six of these plants into pots, or more of them if large specimens are desired. Let sufficient space be afforded between the stems for the admission of sunlight, and fix the stakes firmly, filling in the pots to the extent of two-thirds of their depth with clean crocks, and the remainder with clean, chopped sphagnum. If the plants grow too tall for their position in a house, 1½ ft. may be removed from the bottoms of the stems, and the plants lowered to that extent. If an increase of the number of the plants be desired, the removed portions will soon make roots if placed in a plant-stove. The chief requirements of Vanda teres are heat, exposure to sunshine, and much moisture at the root and in the air whilst growth is being made, and overhead syringing six or eight times daily in sunny weather.

Oncidium Kramerianum and O. papilio.—These species having begun to grow, and push forth new roots, the present is a favourable season for top-dressing and repotting. A suitable compost consists of fibrous peat two-fifths, leaf-soil two-fifths, chopped moss one-fifth. The surface of the compost used should be covered with sphagnum. The species named grow best in small pans which are hung from the rafters or sash-bars in a shady part of the warm intermediate-house. They require much water at the root, and to be syringed while growing.

Cymbidiums.—C. giganteum, C. Traceyanum, C. grandiflorum, C. eburneum, C. eburneo-Lowianum, and the reverse cross, C. Lowi-eburneum, should receive attention if necessary, and the same directions as those given for C. Lowianum in the *Gardeners' Chronicle*, May 30, p. 342, meet their requirements, except that rather larger pots should be chosen for C. eburneum.

Phaius. — The spring-flowering species and hybrids having now mostly ceased to flower, and the new growth being sufficiently advanced, any required repotting may be performed forthwith. In the case of a plant being repotted, make use of a well-drained pot, and a compost consisting of equal parts turfy loam and peat and leaf-soil, together with a small quantity of moss chopped up, and much silver-sand and small crocks, mixing these ingredients together, and pressing the whole with a moderate degree of firmness into the pot. Keep the bottom of the plant just beneath the rim of the pot, and place a thin layer of sphagnum on the surface a few days later. Afford the plants water once, and afterwards sparingly till growth is well advanced, when considerable quantities should be applied. Place in a shady position in the warm-house or plant-stove.

Peristeria elata. — The growths of this interesting, fragrant plant are in a sufficiently advanced stage, and repotting may be carried out when needed. The plant is a strong grower, that makes roots freely, and well-drained pots of rather large size should be employed, as well as a rough, open kind of compost. This may consist of equal parts of good turfy-loam and peat, leaf-soil, and a considerable quantity of coarse silver-sand, and finely broken crocks. When repotting a plant let its base be kept at about 1 inch below the rim of the pot, and the materials pressed moderately firmly. Afford the plant a light position in the stove, and but a moderate quantity of water at the root till growth is well advanced, then apply it abundantly till the growth of the pseudo-bulbs is finished.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Rhododendrons.—When the flowers of all choice varieties have faded let the plants be relieved of their trusses, and thus encourage the development of new growth. The trusses may be broken off or cut off with a pair of scissors, taking care not to injure the young growths forming just below the base of each truss. These shrubs have had a trying time recently, no rain having fallen since the early part of May. If time can be afforded, and there is meanwhile no change in the weather, water may be applied copiously.

Hydrangea paniculata.—Let all the plants of H. paniculata be now cut back, and superfluous shoots removed, leaving on each plant from three to six good shoots, according to the size of the panicles required. A mulch of decayed manure or leaf-mould afforded at this date will hasten the formation of roots, and thus strengthen the growth of the shoots. Water should be freely applied in dry weather.

Iris Kæmpferi.—The requirements of this Iris necessitates its being planted where the water supply can be regulated at will, for if planted in a swampy place the plants die out in the winter. At the present season, however, the plant needs much water at the root, and where there are no means of affording a constant supply, the soil should never be allowed to get even dryish. These Irises will probably be used in conjunction with many other water-loving plants, such as Spiræas, Calthas, Trollius, Myosotis palustris, &c., and my observations apply also to these.

Border Carnations.—Where high quality rather than quantity is desired, many of the flower buds should be removed as fast as they develop, and only three to five left upon each stem. If the blooms are intended for cutting, those left should be at such a distance apart as to admit of a fair length of stem being taken with each flower. In dealing with dark coloured varieties, as the old Crimson Clove, which are liable to scald, the buds retained should be of different ages in order to afford a succession of blooms.

Hints on work in general.—Seeds of the Iceland Poppy may be sown in shallow drills or broadcasted on a border where they are to grow for flowering, the plant flowering best when not subjected to disturbance at the root. They like an open position on a border raised above the general level of the ground. Select and mark a few of the best flowers of each colour, and always those with strong straight stems, from which to save seed. Put in slips of double Wallflowers and cuttings of the best forms of Perennial Candytufts in sandy soil under hand-lights. The Candytufts vary in quality from seeds, and they should only be raised in this way where there are no cuttings of the better forms to be obtained.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, JUNE 18—Linnean Society Meet.
FRIDAY, JUNE 19—Royal Botanic Society: Lecture.

SALES FOR THE WEEK.

WEDNESDAY, JUNE 17—
Palms, Plants, Dwarf Trees, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.—Freehold Market Garden and Nursery, at the Mart, by Protheroe & Morris, at 2.—Freehold Building Estate, known as "Lily Gardens," at the Mart, by Protheroe & Morris, at 2.

FRIDAY, JUNE 19—
Orchids in Variety, at 67 and 68, Cheapside, by Protheroe & Morris, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick—61·1°.

ACTUAL TEMPERATURES:—
LONDON.—*June* 10 (6 P.M.): Max. 60°; Min. 53°.
June 11 (Noon): 54°; very wet and gloomy.
PROVINCES.—*June* 10 (6 P.M.): Max. 61°, Cromer; Min. 5C°, Hebrides.

Fruit Bottling.

IT seems rather an ironical proceeding to write of fruit-bottling this season, as the advice given to catch your hare first will this year apply also to fruit. But given the fruit, it is an easy matter to preserve it, and one which, as Miss BRADLEY (of Lady WARWICK's Hostel, Reading), the lecturer at the Royal Horticultural Society on Tuesday last, urged with propriety and force, may be recommended to the cottager as well as the person of larger means. The conditions of the Drill Hall are so bad, that it is no wonder that only a small proportion of the large and deeply interested audience could profit by the instructions of the speaker. A more striking illustration of the need for a suitable hall and lecture-room could scarcely be found. Some weeks, perhaps months, must moreover elapse before the directions of the lecturer can be read in the *Journal of the Royal Horticultural Society*, on which account we deem it advisable to publish at once a communication on the subject, which we have received from a correspondent in Yorkshire, which we commend specially to the notice of those who are desirous of encouraging home industries, and the development of self-help in our rural districts:—

"It is surprising that in country districts more serious endeavours are not made to cope with the glut of fruit which of one kind or other so often occurs. Here, for instance, in Yorkshire, it is not at all an unusual event for the cottagers to sell splendid Victoria Plums for 1*s.* or even less per stone; while occasionally Gooseberries cannot be sold at all, at a remunerative price.

The process of bottling is so very simple and easy, and moreover preserves the fruit in so much more useful a condition than in that of jam, that had not an idea that the process is a mysterious one gained a firm hold, no doubt every cottager as well as the owners of larger gardens would regularly bottle a supply of fruit for winter use every year.

Current instructions in various books of household management are doubtless to blame for the idea in question, which had its origin in the days when the principles of the various processes of food preservation were not at all understood. Consequently we find it stated as essential that fruit should be gathered on a dry day; must be put into dry bottles; that the bottles must be kept at a uniform temperature, and other conditions which matter not one jot.

Failure may result from not observing two simple conditions—

1. The fruit must be raised to such a temperature as to kill all ferments, to the action of which the decomposition of vegetable substances is due.

2. While in this condition the bottles must be as nearly as possible hermetically sealed, so as to prevent access of air or minute living organisms.

In spite of all elaborate instructions given in cookery-books, these are the only necessary conditions essential. Once the bottles are hermetically closed, the temperature is immaterial, so long as it be between freezing and boiling points. Traditions exist in many places that for success to result, the bottles must be buried in the soil, because old Betty Blossom achieved such wonderful results by so doing, being as successful in fruit-bottling as she was in wart-charming. Such traditions die hard, but in these days of technical instruction it is time they changed places with the bottles.

Sweet-bottles, which can be obtained when emptied from the local grocer at about 2*s.* a dozen, are very convenient in size and shape for the purpose of bottling fruit; and if the following instructions be carefully followed, not a single bottle of fruit will go wrong, but will keep in good condition indefinitely. The bottles in question are 10 inches high and 4 inches in diameter, and stopped by a glass stopper with cork rim, or in some cases by a tin cap with cork lining, but either form serves equally well. The bottles filled with fruit, with a little cold water in the bottom of each to prevent cracking, are placed in a vessel of cold water and placed on the stove or fire. As a still further precaution against cracking, it is well to place a board in the bottom of the vessel on which the bottles may stand. It is not essential that the water in the vessel should reach more than say threequarters the distance of the height of the bottles, which should have the stopper placed lightly in the top of each. If the bottles thus stand in a flat-bottomed vessel, there is no necessity to pack hay between the bottles as generally recommended, unless the surrounding water is so deep as to enable the bottles to become buoyant, in which case a little packing is desirable.

When the water in the vessel approaches the boiling point, it will be noticed that the fruit in the bottles has shrunk a little. The bottles should now be taken out, and the fruit from one or more of them used to fill up the spaces in the rest caused by the shrinkage. All that is now necessary is to pour boiling water from a kettle into each bottle to fill up the intervening spaces; place the stopper in the bottle, and at once seal with a mixture composed of two parts of powdered resin, melted in an old pan, with one part of beeswax. The stoppers should be wiped dry, or the wax will not adhere; and the bottles should be examined as they cool to make sure not a pinhole is left unwaxed. Of course, it is only necessary to wax the space between the stopper and the top of the bottle. When the bottles are cold, another layer of wax should be applied with a brush to make assurance doubly sure. Plums keep in good condition by simply placing the fruit in a cool bottle, pouring in boiling water and at once sealing, though by this process the greater percentage of water caused a lack of flavour. It is better therefore, always to heat till the fruit has shrunk, and then to fill up the resulting space.

All kinds of fruit may be thus preserved equally well, and the flavour is in no sense impaired; indeed, in the case of Plums it is improved, as the flavour of the kernel is extracted by the long immersion in water, though it must be confessed that in the case of Red Currants and Raspberries, the flavour imparted by the pips is no improvement. It is not necessary to bring the fruit in the bottles to boiling point before adding boiling water. It will be quite safe to add it when the fruit is at a temperature of say 150° Fahr. Finally, it is not at all essential that either the bottles or fruit be dry at the beginning of the process. The above method of preserving fruit has proved quite successful in the case of Gooseberries (which should be bottled young, before the seeds harden), red and black Currants, also Cherries, Plums, Raspberries, Blackberries, Apples, and Pears.

It is just possible that a thin layer of mould may appear on the top of the fruit in the bottles, but this is of no importance, nor does it affect any but the top layer of fruit, and not even that if the water comes above it. The small space is caused by absorption of the water by the fruit. More frequently than not, however, the mould does not appear at all."

By the system described by Miss BRADLEY on Tuesday, the fruits are packed so thoroughly that there is no shrinkage, and it is not necessary, therefore, to refill the bottles from other ones; and in all cases her practice has been to cover the fruits completely with water. The particular steam sterilising apparatus that she has patented has very considerable advantages over others, and by its use the operator obtains perfect control of the temperature employed, and can accurately read the amount at any moment. Each apparatus is capable of sterilising seventy pounds of fruit at one time, and the operation takes from ten minutes to three-quarters of an hour after the required temperature has been obtained, by burning gas, oil, or even by placing the sterilizer upon a "kitchener." She has found that Gooseberries need a temperature of 150°, and require twenty minutes. Most of the stone-fruits require very careful attention, and the temperature should be increased very slowly, or the skins will burst, especially if the fruits are young and tender when used. Plums require 25 minutes, Apricots and Peaches 45, Pears 45, Tomatos 30, and Rhubarb 20 minutes.

Miss BRADLEY went on to show that the industry is a remunerative one, and exhibited stoppered bottles that had been purchased when full of fruits. By comparing the prices paid for these with the average prices of the particular kinds of fruit, she estimated that her sterilizer if worked for eight hours a day was capable of yielding a gross profit of 56*s.* each day. Then she deducted 10*s.* 6*d.* for wages to a forewoman and two other women, and a further sum for interest on £50 capital, and for depreciation

of stock, and other working expenses, eventually showing a net profit of 40*s.* per day. But was not Miss BRADLEY supposing that the bottled fruit would fetch the same price as was paid for the bottles which were shown, and which had probably been purchased at retail prices? If fruit-bottling is to be done upon a large scale, and the bottler is not able to dispose of his products directly to the consumer, he will have to be satisfied with a return at least one-third less than the retail price.

The question arose as to whether it is better to preserve the fruits in water only, or in a thick syrup. Some prefer to use a syrup, and the fruits so preserved are very delicious for dessert, requiring no further cooking or additional sugar. Others prefer to use water only, so that the fruits may be preserved as naturally as possible, and when taken for making tarts may be as nearly as possible similar to fruits taken directly from the tree or bush. But there is a third method, in which just a little sugar is added, not sufficient to make a thick syrup, but to very slightly thicken the water, so that the fruits may not lose any qualities that they would be liable to do if kept for a long time in so thin a liquid as water. In order to keep the fruits perfectly natural, the density of the liquid containing them should be as nearly as possible equivalent to that of the fruit-juices. In a perfect balance, the liquid would not "feed" the fruits nor the fruits enrich the liquid.

ŒNOTHERA MARGINATA (Supplementary Illustration).—Œnotheras may be grouped in four sections, namely, the annuals, which are most widely known under the popular title of Godetias; the biennials, of which the tall growing Œ. Lamarckiana is the finest and most commonly met with; the shrubby perennials, typical species of which are Œ. fruticosa and Œ. speciosa; and the stemless perennials, to which section the subject of this note belongs. Although many of the Œnotheras are beautiful plants, Œ. marginata or eximia, is without doubt the handsomest member of the entire family. A native of the mountainous districts of California, introduced into this country between thirty and forty years ago, it cannot be considered strictly hardy, though it has been known to endure severe frost without detriment. In some gardens its culture is attended with a certain amount of difficulty, even where every care is taken to provide for its wants, while in others it grows like a weed. Light sandy soil is recommended for it, but specimens may be seen flourishing in heavy red loam. Being of creeping habit, and rarely exceeding 9 inches in height, its beauty is best appreciated when it occupies a somewhat elevated position, such as that afforded by a raised ledge in the rock-garden some 2 to 3 feet above the level of the ground. In such a site the splendid great white flowers, nearly 5 inches in diameter, are brought closer to the eye than when growing on the ground-level, and their charms are more readily recognised. The buds, before expanding, are flesh-pink in colour, and as the bloom fades it assumes a pinkish tint. The flowers open in the evening, when they emit a delicious Magnolia-like perfume, but by the following mid-day their greatest beauty has departed. They are, however, produced in such abundance, that their short life is scarcely a serious objection, the plant blossoming continuously through the three summer months. Where Œnothera marginata is happy in its surroundings, as was the plant shown in the illustration, it spreads rapidly, a single-rooted cutting sometimes appropriating a space of 4 feet square in two years. Its underground stems penetrate in all directions, often throwing up leaf-rosettes at higher or lower elevations than that occupied by the parent plant, and occasionally even emerging on the opposite side of narrow garden paths. The deeply-toothed leaves, from 6 inches to a foot in length, completely cover the soil in the summer, but in the winter the prostrate stems may often be seen lying bare for a foot or two of their length. Where this is the case they should be carefully buried to within an inch or two of their extremities. Small offsets thrown up by the running root-stems, if removed with a little fibre, root readily during the summer; and cuttings of the flowering stems, if taken with an inch or two of the woody stock, and placed in a bed of pure sand in the open, and kept well watered, will strike in a short time.

LINNEAN SOCIETY.—On the occasion of the evening meeting, to be held on Thursday, June 18, 1903, at 8 P.M., the following papers will be read:—1, "Descriptions of New Chinese Plants," by Mr. S. T. DUNN, F.L.S., &c.; 2, "Scottish Freshwater Plankton," by Mr. W. WEST, F.L.S., and Prof. G. S. WEST, F.L.S., &c.; 3, "On the Life-History of a New Indian Species of Monophlebus," by Mr. E. P. STEBBING, F.L.S.; 4, "On the Anatomy of Leaves of British Grasses," by Mr. L. LEWTON-BRAIN.

ROYAL HORTICULTURAL SOCIETY.—GREAT SUMMER FLOWER SHOW, HOLLAND HOUSE, KENSINGTON, JUNE 25, 26, 1903.—The Royal Horticultural Society will hold a great summer flower show at Holland House, by permission of the Earl and Countess of ILCHESTER, on June 25 and 26. The show will be open to Fellows (showing their tickets), and to others showing Fellows' transferable tickets, at 12.30 on Thursday, June 25, and at 9.30 A.M. on Friday, June 26. All annual tickets must be shown at the gate, and all other tickets given up. The public will be admitted on Thursday, June 25, at 2 P.M., on payment of 7*s.* 6*d.*, and at 9.30 A.M. on Friday, on payment of 2*s.* 6*d.* The grounds will be cleared of visitors at 8 P.M. on Thursday, and at 6 P.M. on Friday. The only entrance to the show is by the Great Gate in Kensington High Street, and the only exit by a gate leading into Melbury Road, where carriages may be ordered to wait. Tickets will be on sale at the entrance to the show-ground, but in order to avoid overcrowding at the gate the public are earnestly requested to obtain their tickets on or before Tuesday, June 23, at the Society's offices, 117, Victoria Street, London, S.W.; these offices will be closed on the days of the show, and consequently no letters should be addressed there on the previous day. The Judges will meet at the Secretary's tent at 10.30 A.M., and the Fruit, Floral, and Orchid Committees at 11 A.M. on Thursday, June 25. An official catalogue of this show will be issued and distributed gratis among the visitors, and will contain a plan of the show, schedule of the exhibits, with the names and addresses of all the exhibitors entered up to Monday, June 15, a short historical sketch of the Royal Horticultural Society, particulars relating to the Society's new Hall and offices now in course of erection, and the programme of the music to be performed each day by the band of His Majesty's Royal Horse Guards (Blues).

KEW.—Among the plants in flower at Kew at the present time are Amorphophallus dracontioides, Cymbidium rhodochilum, and Masdevallia muscosa.

"THE BOTANICAL MAGAZINE."—The June number contains coloured illustrations and descriptions of the following plants:—

Clematis Meyeniana (Walpers), t. 7,897.—A Chinese species, with loose panicles of white flowers, each about 1¼ inch in diameter. Temperate-house, Kew.

Laburnum caramanicum (Bentham & Hooker), t. 7,898.—A hardy leguminous shrub, native of Greece and Asia Minor, with trifoliolate leaves, and erect panicles of yellow laburnum-like flowers. Kew.

Mimosa Spegazzinii (Pirotta), t. 7,899.—A shrub, native of Argentina, with foliage and flower-heads like those of the ordinary sensitive plant, M. pudica. Kew.

Dendrobium Madonnæ (Rolfe), t. 7,900.—A native of New Guinea. The lowest pseudo-bulbs are dilated ovoid, tapering into short, stalk-like joints, which again expand into long, spindle-shaped sulcate pseudo-bulbs, each bearing at the apex one or two leaves. The flowers are about 2 ins. across, white, with a few purplish spots on the margin of the lip. Kew.

Primula megaseæfolia (Boissier & Balansa), t. 7,901.—*Gardeners' Chronicle* (1901), i., p. 223, fig. 84. Kew.

THE YORKSHIRE FLOWER SHOW. — We are requested by the Secretary to remind our readers that entries for the Floral and Musical Exhibition at York, on the 24th, 25th, and 26th inst., should be made on or before Wednesday, the 17th inst.

THE LONDON AND SOUTH-WESTERN RAILWAY COMPANY have issued a new edition of their "Illustrated Guide and Official List of Hotels, Boarding Houses, Seaside and Farmhouse Apartments," in anticipation of the coming holiday season. It contains descriptions of the principal resorts served by the Company, with illustrations and full details of the amusements and recreations to be found at each place, whether by the seaside or inland. Copies may be obtained gratuitously on application to Mr. HENRY HOLMES, Traffic Superintendent, Waterloo Station, or to any agent of the Company in England or on the continent.

"EVERYBODY'S STREET GUIDE TO LONDON."—Published by JOHN DICKS, Effingham House, Arundel Street, Strand. For the low price of a penny we have a wonderful list of street names, together with details concerning the postal district, nearest main thoroughfare, and nearest railway station. It is so good that we are tempted to wish for two additions to make it complete: the first, a few words defining the limits of the word "London" as here surveyed; and the second, a map, showing at least the more important thoroughfares and railway stations.

CAPE FRUITS.—The total value of the exports of dried fruit from Cape Colony in 1902 was £105 against £1,353 in 1901, and £826 in 1900. Fresh fruit was exported to the value of £6,741 last year against £7,771 in 1901, and £8,304 in 1900.

THE DEVON AND EXETER GARDENERS' ASSOCIATION.—The committee have made arrangements for an excursion to Watermouth Castle, the estate of C. H. BASSET, Esq., who has given permission to pay this visit. The party will afterwards proceed to the Church of St. Peter, at Berrynarbor. From Berrynarbor the drive will be continued to the ancient market town of Combmartin.

TEA IN THE TRANS-CAUCASUS.—We learn that the cultivation of the Tea-plant in the southern Trans-caucasus, principally in the vicinity of Batoum, is making great strides. Only nine years have elapsed since the first attempt in Tea-culture was made on the Black Sea coast, and though looked upon with great scepticism, it is now evident that the cultivation can be advantageously entered upon. The managers of the Imperial Domains now have in hand from

500 to 600 acres under Tea, and during 1902 the crop has exceeded all expectations. One *desscotine* = 2·7 acres, has on an average yielded 720 lbs. avoirdupois, which at 1 rouble per pood has brought in nearly £30 an acre. Owing to the satisfactory results obtained, the Russian Minister of Agriculture is about to adopt a series of measures to encourage the cultivation by the smaller peasant class, and printed instructions are being freely circulated among these people. There is now every reason to believe that the cultivation and manufacture of Tea will be one of the most prosperous and profitable agricultural pursuits in the Trans-caucasus.

EUCALYPTUS.—Mr. J. H. MAIDEN, the Government Botanist of New South Wales, has commenced the publication of a critical revision of the genus Eucalyptus. In view of the great economic value of the species, and the consequent necessity of identifying them with as much facility and accuracy as possible, this attempt of Mr. MAIDEN's will be welcomed alike by naturalists and by those concerned in the utilisation of these noble trees. After some preliminary remarks, and a discussion of the "characters" used to distinguish one species from another, the author gives a full description of Eucalyptus pilularis, accompanied by two excellent lithographic illustrations. Unfortunately, the vernacular names seem to be every whit as much confused as the scientific names. Under the name of yellow stringy bark is included what Mr. MAIDEN considers a variety of E. pilularis, and which is the same as that named by HOWITT as E. Muelleriana. Of this variety it is stated that some piles of the Welshpool jetty were driven in 1859. Recently the jetty was partially destroyed by fire, when the stumps of the piles were found to be still in such excellent condition that they were not withdrawn, but short pieces were spliced on to them. At low water these old piles were examined, and found to be perfectly sound—uninjured by sea-worms, notwithstanding that they had been in sea-water for more than thirty-one years.

A DISHONEST JUDGE.—A farmer in West Australia has lately been fined £500 for obtaining prizes from agricultural societies by fraudulent means. The farmer being a judge at these shows, awarded prizes to his own sheep which were shown under someone else's name. The culprit signed a cheque while in the dock, and was detained till the cheque was paid. It is clear that a money payment would not deter such a rascal as a term of imprisonment would have done.

UNDERGROUND IRRIGATION.—We have received a paper by Mr. JOHN GRANT, on "Underground Irrigation in the British Isles and in India." The system described is based upon the fact that watering the surface of the ground often proves ineffective so far as roots below it are concerned. Mr. GRANT's scheme of irrigation involves the utilisation of spear-pointed, hollow Bamboo canes, thrust in vertically, and in some instances, of horizontal (Bamboo) pipes laid vertically. In the Rice-fields of India, as well as in Britain, the inventor hopes that much benefit will be derived by using Bamboo canes to "prevent the enormous waste of water by evaporation which surface-watering involves in hot, dry weather, and admit the free entry of the night dews into the depths of cultivated ground, which surface-watering prevents by caking the surface together." For further details, application should be made to Mr. GRANT, 8, Belmont Grove, Lee, Kent.

STOCK-TAKING: MAY.—Just now there is great talk about political mine-springing—dear loaf *v.* cheap loaf, low wages and high wages. The facts supplied month by month per the Board of Trade Report appear to be a sufficient rejoinder, and will be accepted to-day as in all the years past as "chiels that winna ding;" at any rate, for our purposes the figures are always of interest to the reader. For the month of May, the Trade and Navigation Returns show a decrease amounting to £1,438,599 in the value of imports (£41,915,106) as compared with May, 1902 (£43,353,705). The decrease in the values of cereals will account for a large share of this decrease. The figures in the following little tabular statement possess their usual interest:—

IMPORTS.	1902.	1903.	Difference.
	£	£	£
Articles of food and drink—duty free	9,429,220	9,057,594	−371,626
Articles of food & drink—dutiable	8,929,587	8,711,966	−217,621
All other Imports...	24,994,898	24,145,546	−849,352

The serious forest fires which have been raging in the eastern United States and in the maritime provinces of Canada bordering the Atlantic, add interest to the few figures respecting our timber imports: total value of wood and timber of all classes, £1,872,744, against £1,479,653 for the corresponding month last year—an increase of £393,091. We come now to the Returns of fruits and vegetables, &c., imported, which are as follows:—

IMPORTS.	1902.	1903.	Difference.
Fruits, raw—	Cwt.	Cwt.	Cwt.
Apples	70,395	85,203	+14,808
Apricots and Peaches	1,026	202	−824
Bananas: bunches	242,758	328,525	+85,767
Cherries	16,543	8,107	−8,439
Gooseberries	525	869	+344
Grapes	1,347	910	−437
Lemons...	88,044	76,464	−11,580
Nuts—Almonds ...	6,035	9,456	+3,421
Others, used as food	69,791	67,827	−1,964
Oranges...	752,814	815,489	+82,675
Pears	417	2,701	+2,284
Plums	.....	.....	.....
Strawberries	1,894	1,928	+34
Unenumerated ...	5,848	6,133	+285
Vegetables, raw—			
Onions ... ...bush.	494,656	1,098,231	+603,575
Potatos ... ... cwt.	583,022	907,910	+321,888
Tomatos... ... ,,	58,152	88,193	+30,041
Vegetables, raw, unenumerated ...value	£61,287	£50,295	−£10,992

As with timber in the United States and Canada, so must it be with orchards, and the harvest record for many a section must be but a melancholy one. The agreement in connection with the Currant trade of Greece has been signed by the contracting parties, but has to be discussed and passed by the Greek Chamber of Deputies. As the document contains some forty articles, "the trade" will look elsewhere for information. Possibly "the pudding" may cost more than now, but the competition from "outside" may step in, and correct an upward tendency! The value of the imports for five months is £219,260,527 as against £222,135,337 for the corresponding period in 1902—a decrease of £2,874,810. Come we finally to the—

EXPORTS,

which for the month figure at £24,327,026, against £22,831,974 for the same period last year—an increase of £1,495,052. Out of a total of thirty-one items of export, there are but five relating to decrease, though these are comparatively large. The exports for the five months just ended foot up at £120,250,665, against £114,123,191 for the five months of last year—an increase of £6,127,474.

AN ORIENTAL POPPY.—Mr. PERRY, of Wincbmore Hill Hardy Plant Nursery, has sent us flowers of the variety of Papaver orientale known as Mrs. Marsh. It is rich scarlet in colour, and is remarkable for having blotches and stripes of white upon each petal. Being of very good form, and moderate size, it affords a variation to the self-coloured flowers, but is hardly so effective as they are.

HARDY CYPRIPEDIUMS.

(*Continued from p. 356.*)

C. MONTANUM (Douglas) = C. occidentale, is a pretty species, inhabiting the mountains of western U.S.A. Its stems reach a height of a foot or more, clothed with ovate leaves, less markedly hispid than in other species. The flowers average three to a spike; the sepals and petals are purplish, marked with brown, twisted and drooping, the dorsal sepal being hooded. The lip is a dainty, slipper-like process, white with lilac shading, occasionally irregularly marked with rosy tracery on the outside, and always lined with rose within. The entrance to the slipper is not flanged, and the column is coloured a rich yellow, spotted with crimson. The flowers span 4½ inches from tip to tip of the petals. It is, in my estimation, the prettiest of the hardy group, the flowers being exceptionally dainty, pleasingly fragrant, and freely produced. It succeeds well in any part of the garden, provided shelter from frosts and sunshine are given; it does not object to the winter wet, and succeeds as well in the open as it does in pans for cool-house cultivation. It is quite as easy to establish as C. calceolus, and a neater garden plant could scarcely be desired.

C. parviflorum. — Another American species, delighting in damp, boggy places, and considered by many to be a miniature form of C. pubescens, but from a garden point of view the plants are quite distinct. It has broadly lanceolate leaves, not markedly hispid, clothing a slender stem a foot high, which bears one to three flowers, the sepals and petals of which are coloured a ruddy-brown, heavily marked with yellow near the base; the margins are undulating, and the side-petals are much twisted and drooping, ranging from 4 to 5 inches in length from tip to tip. The dorsal sepal is invariably turned back. The lip is prettily shaped, coloured a rich golden-yellow, freely spotted carmine on the inside, and faintly lined with brown on the outside. The plant should have the coolest and dampest place the garden affords at all seasons, and the root-run should be almost entirely peat or leaf-soil. One can recommend this plant as an exceptionally choice species, whose flowers are finely coloured and exquisitely shaped rather than large. Its roots are very long and surface-feeders, a point to consider in making up sites for them.

C. pubescens (fig. 146, p. 379).—A really fine garden plant, with bold, handsome flowers, tall stems, and rich colouring, hailing also from N. America. The leaves are broadly ovate, very pubescent, as also are the stems. Flowers 5 to 6 inches across, borne in two's, rarely three or four together, the sepals and petals of which are coloured a greenish-yellow or brown, with prominent lines and chequerings of ruddy-brown on both surfaces, and they are elegantly twisted; the margins of some are crimped. The lip or slipper is rich yellow, an inch across, and often 2 inches long, not pouched and bag-like as in C. calceolus, but wide across the middle, tapering to a sharply defined tip horizontally poised. The column is yellow, spotted with crimson. One of the finest Cypripediums in cultivation, in many respects as good as two-thirds of the tender species; not difficult to manage as a garden plant, succeeding well under treatment recommended for C. parviflorum.

C. spectabile = *C. reginæ*, of American growers, and generally known as the "Mocassin-flower," is a tall-growing, robust plant, with remarkably hispid, broadly ovate leaves, and stout stems quite two feet high, bearing one to three flowers each. The petals and sepals are bluntly ovate, generally pale pink or rose, somewhat connivent with the lip, and often four inches across in extreme diameter. The lip is perfectly spherical, coloured deep rose or purple, as large as a Walnut minus its husk. The colour varies with different specimens, some are very highly coloured, others prettily lined and flushed, whilst a few albinos have been found among them. The plant requires a wet situation, not necessarily shaded, so long as the roots are screened by other vegetation; the margins of streams, bogs, and other waterings suggest themselves as ideal sites for plantations of this splendid plant, whilst in the West of England and in Ireland where atmospheric moisture is plentiful, the north side of a wall will do equally well. The plant reaches its fullest development in places where winds are tempered, and moisture is abundant at all seasons. *George B. Mallett.*

HOME CORRESPONDENCE.

BUDDLEIA VARIABILIS.—This Chinese plant seems to be a desirable addition to our list of choice shrubs. Although doubts have been expressed regarding the hardiness of the plants in the North, an example growing here has come through the past two winters unharmed, without any protection whatever being afforded, and it flowered very freely at the latter end of last summer. It seems to be variable in the outline of its leaves and the colour of its flowers, and the variety Veitchiana, which received a First-class Certificate from the Royal Horticultural Society last summer, has flowers of a pale mauve colour, more closely packed on the raceme, and is much superior to the type. *J. J., gr., Idlerocks, North Staffordshire.*

WALL FRUIT TREE TRAINING.—Calling on Mr. H. Markham, gardener at Wrotham Park, Barnet, recently, I was pleased to observe his excellent method of nailing and training wall trees. This took my memory back to the early years I spent at Trentham, Alderley Park, and other gardens, and I may say that I have observed no such good examples of training for many years. When also I consider the large extent of the walls at Wrotham, and their condition four years ago when Mr. Markham took charge of the gardens, the improvement in the condition of the trees is very marked. Good training takes no more time in the doing than bad work, and although good training does not affect the crop, it adds a good deal to the general appearance of the walls in a garden like that of

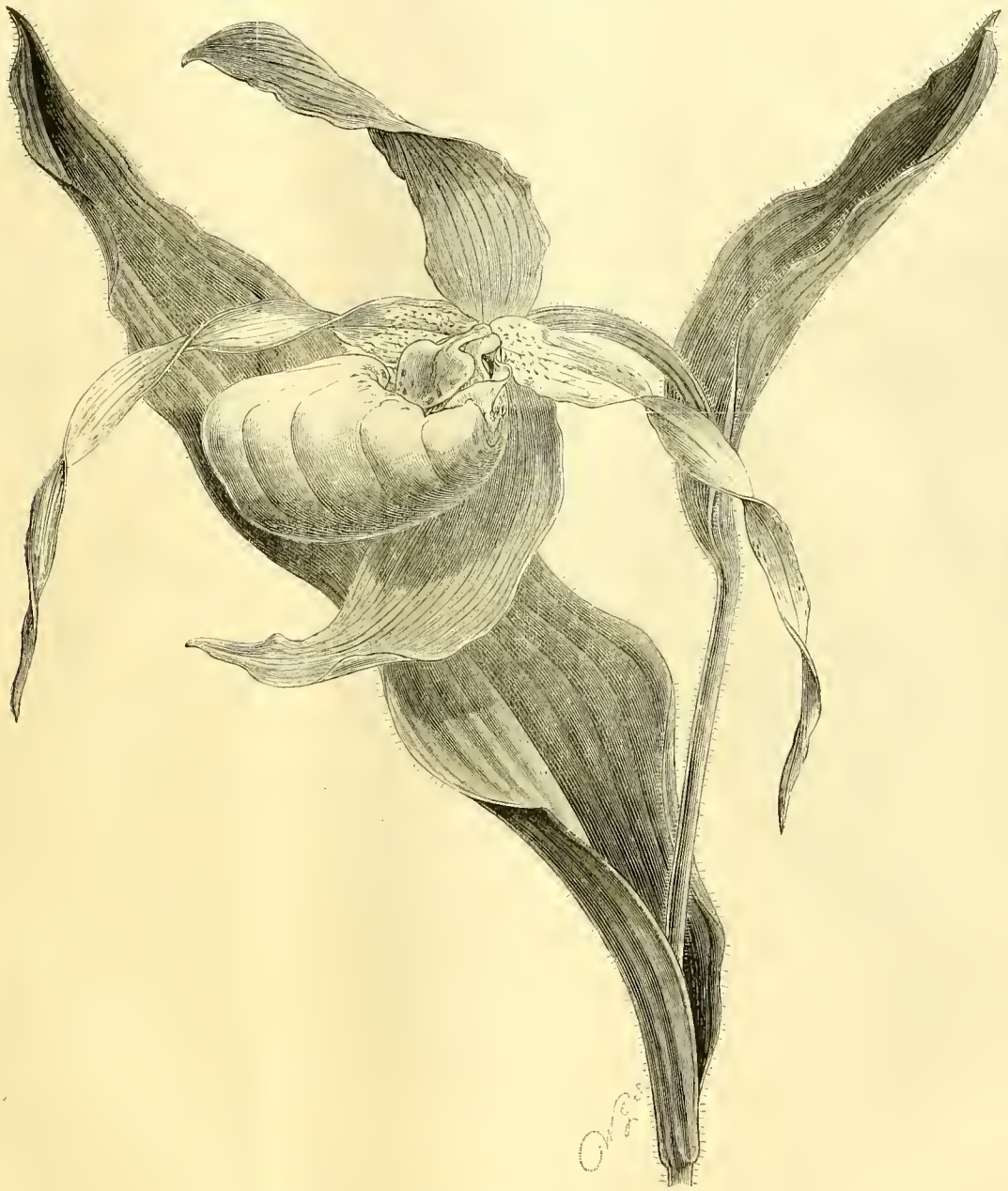

Fig. 146.—Cypripedium pubescens: a hardy species.

Wrotham. I remarked in the case of aged trees that these are being re-juvenated by the removal of the accumulated barren branches, and the replacing of them with new bearing shoots. The garden being surrounded by woods and trees, the birds form a great plague, devouring not only the Peas and other seeds, but the blossom-buds of the Apple. As an experiment the Apple trees were dressed with a mixture of quicklime, flowers-of-sulphur, and a trifling amount of petroleum, which has proved effective so far. Lettuce and Carnation beds have to be netted as a protection against sparrows. *Stephen Castle.*

EARLY CRAWFORD PEAR is not so rare south of the Tweed as Mr. Murray imagines. Many tons find their way into the local markets in this district in a favourable season. Its quality is, however, so poor, that it is not worth planting for private consumption, and any attempt to rescue it from the oblivion into which it is rapidly sinking is to be deprecated. *J. R. P., Lowdham, Notts.*

RICHARDIA AFRICANA GROWING OUT-DOORS IN WATER.—This plant seems to be more hardy than is popularly supposed. We have, in the Lily-pond here, plants in bloom at the present time (June 3) which were subjected to 6°, 7°, and 8° of frost on three consecutive nights during April. Contrary to my expectations, the plants escaped with very little injury. The pond is in a sheltered position, and is open to the south. The plants are growing in about 2 ft. of water, and have been in their present situation about twelve months, being a number raised from offsets taken off plants the previous autumn at potting-time, and potted thickly in large pots, and afterwards planted out in previously prepared places in rich soil. They are thriving under this kind of treatment, and showing a number of fine spathes, which have developed rapidly during the recent hot weather. *R. W. Dean, gr., Wainsford, Lymington, Hants.*

AN ONION-BED PEST.—I am sending you some specimens of a fly which I have destroyed with camphor; could you please tell me what they are, and what mischief (if any) they do? also the best means of getting rid of them. I never saw them till I took charge here, but they were the same last year as this, and have been for some years, by what I can gather. Just as the Onions are up nicely in rows, I noticed dozens of starlings running about catching something, which proved to be this fly; the starlings do not come till just as the sun gets on the bed, from 6.15 to 6.30 A.M., and they all leave and have finished for the day about 10.30 or 11 A.M. I also noticed a great many holes about the size of ordinary worm-holes all over the Onion-bed, and I think these flies come out of them between the times mentioned, and fly away if not caught by the birds. Would these flies lie in the ground all the winter as chrysalids or as grubs, and emerge in the spring in the fly state? I have noticed the birds catch some on the ground where the previous year's Onion-bed was, which this year is down to Potatos, but in no other part of the garden—which I cannot account for. It is quite a sight to see the birds catching them, and I have seen one bird with a great number in its beak. What a great amount of good, and what friends to the gardener these birds are! *A. W.* [Bibio hortulanus is the name of the insect; the males are black, the females yellow. It is an extremely local species, but evidently abundant where it occurs. It was probably introduced in the manure, either in the larval or pupal stage. It has not been reported as injurious to crops; but we would advise you to give the starlings unmolested possession of the infected ground. We can suggest no better remedy. *R. Newstead.*]

A HOSE-IN-HOSE VARIETY OF GLOXINIA.—I herewith send specimen flowers of the above for your inspection. These flowers were taken from a plant growing in a 5½-inch pot, and having upwards of fourteen open flowers and twenty flower-buds. It originated amongst a batch of seedlings raised from a packet of seed purchased from the Messrs. W. Clibran & Son, of Altrincham and Manchester, some three years since. In my opinion it is a very pleasing and attractive flower, having bright colouring and hose-in-hose or frilled inner petals. I do not remember having observed a similar flower. [Common many years ago. ED.] We grow some hundreds of Gloxinias of the ordinary type, which are arranged on shelves in a mixed Palm and Fern-house, and in which Azaleas are grown. I have several other shades of red, with the same peculiarity as the one sent. *E. Ward, gr., Longford Hall, Manchester.*

AZALEA INDICA FIELDER'S WHITE.—As an admirer of Azaleas in general, I am very glad to notice that (as I think and hope) there is a revival of interest in their culture. My main reason for saying this is the more extended notice of them in your excellent descriptive accounts of them at the recent Ghent and other exhibitions. To my view, Azaleas are by far the most handsome group of hard-wooded greenhouse plants grown. While not looking forward to seeing them cultivated in the form of giant pyramids, as was the custom in the sixties and seventies, I still think that if prizes were offered for groups of more naturally grown plants, much interest might be added to our late spring exhibitions. This would be added to if it were stipulated that a base of suitable foliage plants should be used. However, I am getting away from the heading of this note. In these utilitarian days, I do not think we can well afford to put on one side the old Fielder's White. For working up into wreaths and other forms of memorial use, no other white Azalea can come up to it; its extended stamens and pistil give it quite a characteristic appearance. We find naturally grown plants, both large and small, to be most useful and acceptable in church decoration at Easter and other times when required. As will be known to many of your readers, this old Azalea has a good constitution, hence does not suffer from the changes of temperature, &c., to which plants used for general decorative purposes are more or less subject. When repotting, we always use one-third of the compost in the shape of small nodules of turfy loam to two-thirds of tough peat, with a good sprinkling of Bedford sand. The more delicate varieties with us do not take to the loam so well. We find it to root well from cuttings of half-ripe shoots taken off with a heel, and inserted round the sides of a 3-inch pot, then plunging them in a moderate bottom-heat. *H. J. C.*

BERRIED AUCUBAS.—We find these handsome evergreen shrubs to berry freely here. Some fifteen years ago two groups were planted, and so far they have proved quite hardy. I dare say a zero winter following on a wet, cold summer might injure them, as it did the old Aucuba japonica in 1879. In that case, where not overgrown by other shrubs, they broke away again from their bases. With us the green-leaved varieties berry more freely than the variegated ones. Small groups planted in the front of other shrubs would add interest to any garden. In the few branchlets sent for your inspection, there is one with berries of a dull white colour, which I believe is somewhat uncommon. We have raised some seedlings of the crimson-berried one; they take nearly a year before they germinate from the time the seed is ripe. *H. J. C., Grimston, Tadcaster.*

POA ANNUA AS A LAWN GRASS (*vide p.* 357).—The lawns at Kew owe much of their brightness to this grass. It is also a feature of the golf-links in the Old Deer Park adjoining, where the "greens" are exceptionally good and pile-like. It is quickly affected by drought, so that lawns, which either through the character of the soil or drainage, are liable to dry up quickly, would soon suffer unless they were regularly afforded water. There is no better grass where the conditions are favourable, these conditions being an open soil and regular supplies of moisture. The "greens" in the Old Deer Park have water applied almost daily in dry weather. Poa annua flowers freely and continuously from April to September, and as it seeds very freely it is always reproducing itself. Sparrows are very fond of the seeds. The lawn-mower does not interfere with its reproduction, the short spreading panicles escaping the knives. I would recommend its inclusion in the proportion of at least 20 per cent. of grass seed mixtures for lawns. Although this grass does not appear to be recommended by experts for lawns, yet its merits have long been known. I quote the following from a *Treatise on Cultivated Grasses*, published by the Lawson Seed and Nursery Company, Edinburgh, in 1877:—". . . From its being greedily eaten by cows and sheep, it has been recommended as a pasture grass; but there are two obstacles which tend to prevent its cultivation, viz., the difficulty with which its seeds are collected, owing to the irregularity in which they arrive at maturity, and from being easily shaken out when ripe, and the small bulk of produce. It has, however, been beneficially employed for sowing on greens and bleaching-grounds in towns and places where the perennial grasses are apt to be destroyed in winter. In summer it will ripen its seeds in four or five weeks from the time of sowing." The seeds may now be purchased at about 6*d.* per lb. wholesale. *W. Watson, Kew.*

POA ANNUA NOT A SELF-FERTILISER.—An entire philosophy is gone like a dream, a fertile basis of enquiry and investigation is lost to science, if we accept the dictum promulgated by the Rev. Professor Henslow in the *Gardeners' Chronicle* of June 6, p. 357, that "Nature rejoices in self-fertilisation." It cannot be denied that flowers can be and are self-fertilised in various instances, but I wish to point out that Poa annua, the instance claimed and written about, is not by any means a self-fertiliser. It is simply very ephemeral, and the hours of pollination are those of the early morning, when the early birds are catching their first worms. Up to about 8 o'clock any number of anthers may be seen hanging out, but by that hour the majority, if not all, have cast their pollen to the winds; at the same time, two, or four, or even six feathery stigmas may be seen projecting sharply at right angles from the spikelets, as if to sift the air of any pollen that may pass that way. Apparently the first glint of morning sunshine is sufficient to scatter the pollen, and before many hours are over the spreading stigmas can no longer be seen. I do not mention this as a record of repeated observation, but I have observed enough to be satisfied that Poa annua, in its economy, does not differ from the majority of other grasses in the least. So often do plants refuse to be self-fertilised, so often do they make the most extraordinary efforts to be cross-fertilised, that whenever a plant seems to be self-fertilised, we are bound to put the question to it, How do you secure cross-fertilisation? *R. Irwin Lynch.*

PANAMA HATS—These are made from the leaves of a Carludovica, usually C. palmata, and not from any fan-leaved Palm, although the note in the Jamaica *Bulletin*, to which reference was made in your pages last week (p. 361), says they are. It is clear, however, that the term Palm as there used, is not strictly correct; indeed, further on in the same paper the Carludovica is mentioned by name. Last year a quantity of young plants of this, the "Ippi-appa," were received at Kew from Jamaica, and most of them have since been distributed to other parts of the empire, where there is a chance of the "Panama hat" industry catching on. *W. W.*

SOUVENIR DE LA MALMAISON CARNATIONS.—Mr. G. T. Briggs' remarks in your issue of May 30, p. 348, that it is very seldom Malmaisons throw more than eight to twelve flowering shoots for the second year, and must be well grown. I quite agree that the plants must be well grown. Mr. Briggs would do well to pay a visit to Dr. T. Holman, Gate House, East Hoathly, and take note of his collection of Malmaisons, which consist of some 800 plants of all sizes, the varieties grown being chiefly Nautilus and Princess of Wales. The large plants are four years old, and measure 3 ft. 6 ins. across and 4 ft. in height, in 14-inch pots, with about sixty blooms or buds. The two-year-old plants are more than 2½ ft. across, with eighteen to twenty good blooms, and about eighty flowering shoots for next year. These plants are growing in 12-inch pots, and are one year old, with five and six good blooms, and twelve to fourteen shoots for next year's flowering; one plant I noticed measuring over 4 ft. across, with eighty-three blooms and buds. All these plants are raised from cuttings, not layered, and under the management of Mr. Brooker, the Doctor's head gardener, who is

never without blossoms of Malmaison Carnations. Other Carnations are grown equally well at Holman Gate House, viz., Uriah Pike, Reginald Godfrey, Duchess of Fife, Winter Cheer, Mrs. T. W. Lawson, Flame, Lady Carlisle, Lord Roberts, and C. A. Dana. *H. Peckham, gr., Barham House, East Hoathly, Sussex.*

EREMURUS.

A group of noble, hardy, perennials belonging to Liliaceæ, inhabiting for the most part, Northern India, Persia, and Turkestan. The genus consists of some dozen or more species, as at present known, and these, with their imposing characteristics, never fail to impress those who see them for the first time. Despite the fact that some of the species have been for years known to cultivators of hardy perennial plants, we are only now, so to speak, at the beginning of their general cultivation; by which is meant that only recently have these things been taken up in earnest.

On Tuesday last, the 9th inst., Messrs. Veitch and Cutbush each displayed at the Drill Hall a really fine array of giant flower-spikes in the cut state. As regards their cultivation, this is very simple. The best season for planting is the months of September and October.

The following are the more important members of this group:—

E. Bungei, also referred to as E. aurantiacus, is a comparatively scarce and showy species, with flowers of a clear citron-yellow. While another form of E. Bungei is called præcox, which resembles the above save in the time of its flowering, which is simultaneous with E. robustus, E. himalaicus, &c. Both kinds are valuable for the colour, as also for prolonging the flowering season.

E. himalaicus.—This is a fine species, growing to 7 feet or more in height, the spikes densely set with pure white flowers for about one half their length. It is in every respect a high class plant, and as hardy as any.

E. Olgæ.—In general habit of growth this is near to E. Bungei, though perhaps slightly more glaucous in colour. The spike will attain to 8 feet high when fully grown. The flowers, which are palish flesh, lined with red, are of large size, and disposed on extended stalks produce a very handsome effect. This somewhat rare kind is a native of Turkestan.

E. robustus, also from Turkestan, is one of the giants of a giant race, for its towering spikes will at times reach to more than 11 feet high. (See *Gardeners' Chronicle*, Dec. 14, 1901, p. 426.) The flowers are of a light rose-pink tint, and closely arranged form a densely columnar spike of several feet long. This and its variety E. r. Elwesianus are the noblest of the family, and for this reason, coupled with great vigour and freedom of flowering, are much in demand.

E. Warei.—It is doubtful if the true plant, of which seeds reached this country, is now in cultivation. It is a hardy species, and was exhibited a year or two ago at one of the meetings of the Royal Horticultural Society.

There are some others, chiefly of hybrid origin, but none surpass those I have mentioned in appearance. All the species come freely from seed, and will flower when four years old, if rightly cultivated. It is important, however, that the seed be sown while it is quite fresh. *E. Jenkins, Hampton Hill.*

[Our illustration (fig. 147) shows some plants of E. Elwesianus growing in Mr. Wrigley's garden at Wansfell Holme, Windermere. For a tabular list of the species and varieties by M. Mottet, see *Gardeners' Chronicle*, December 14, 1901, p. 426. Ed.]

SOCIETIES.

ROYAL HORTICULTURAL.

June 9.—The display made at the Drill Hall, Buckingham Gate, Westminster, on Tuesday last, was more than usually varied and interesting in character. The press for space was felt keenly, and some exhibitors could not obtain all they desired, which, no doubt, had a salutary effect, for exhibits were numerous, rather than large, and exhaustin

The Floral Committee recommended six Awards of Merit, and as many as twenty Medals.

The Orchid Committee recommended one First-class Certificate, one Botanical Certificate, and five Awards of Merit.

There was very little fresh fruit exhibited, and no award was made to any novelty; but there were several collections of fruit preserved in bottles.

At the afternoon meeting there were about 140 new Fellows elected to the privileges of the Society; and Miss Bradley, of Lady Warwick's Hostelry, Reading, read a paper upon "Fruit Bottling," of which a practical demonstration was given.

Floral Committee.

Present: H. B. May (Chairman), and Messrs. C. T. Druery, R. Dean, J. A Nix, G. Reuthe, W. Howe, C. R. Fielder, Chas. Dixon, Chas. Jeffries, J. W. Barr, H. J. Cutbush, R. W. Wallace, W. Cuthbertson, W. P. Thomson, E. H. Jenkins, W. J. James, Geo. Paul, J. Hudson, W. F. Baker, J. Jennings, and R. C. Notcutt.

We do not often see collections of annuals at the Drill Hall, consequently a group shown by Messrs. Watkins & Simpson, 12, Tavistock Street, Covent Garden, W.C., attracted considerable attention. They were well-grown specimens in pots, and served to show the attractive qualities of some of the best species. Some of the plants shown were Linaria aurea reticula a purpurea, a very effective plant, with yellow and purple coloured flowers; Collinsia bicolor, Chrysanthemum tricolor Morning Star, C. coronarium "Primrose Dame," a dwarf habited plant with double flowers of pale lemon colour; Schizanthus retusus, S. albus compactus, Nemesias, Clarkias, &c. (Silver Banksian Medal)

Messrs. Jno. Peed & Son, West Norwood, London, S.E., exhibited Gloxinias, showing a group of well-grown, abundantly flowered plants, of good varieties,

Fig. 147.—EREMURUS ELWESIANUS: IN THE GARDEN AT WANSFELL HOUSE, WINDERMERE.

interspersed among dwarf Ferns (Silver Banksian Medal).

Messrs. W. CUTBUSH & SONS, Highgate, London, and Barnet, Herts, made a pretty exhibit of Souvenir de la Malmaison Carnations, in pots, banked with spikes of Eremurus himalaicus, over a groundwork of Veronica amethystina. Messrs. W. CUTBUSH & SONS also exhibited a number of varieties of Begonia, all of which have a dwarf habit, and produce small double flowers. Of these "Little Pet" Begonias, as they were labelled, there were varieties in the following colours:—Pink, creamy-white, rose, vermilion, yellow, carmine, orange, lemon, salmon, and crimson; whilst yet another with reddish flowers is called "Strawberry Pet." The Begonia La Fayette, of dazzling rosy-scarlet colour, constituted a good companion for the "Pets," which appear to be very suitable for grouping in flower-beds (Silver-gilt Flora Medal).

Souvenir de la Malmaison Carnation, which is now to the front at every exhibition, was shown well by Messrs. HUGH LOW & Co., Bush Hill Park Nurseries, Enfield, who had good flowers of the new and choice varieties, arranged prettily in vases.

MARTIN R. SMITH, Esq., The Hayes, Kent (gr., Mr. C. Blick), exhibited four seedling varieties of border Carnations, of which Bridegroom, a variety of deep rose colour, and large size, which does not burst its calyx, was excellent. Of the Malmaison type, there was one exhibited named Armada, having yellow flowers, striped with purple, but it appeared not to be of purely "Malmaison" parentage.

Messrs. PHILLIPS & TAYLOR, Lily Hill Nurseries, Bracknell, exhibited good flowers and a few plants of Souvenir de la Malmaison varieties.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, exhibited a few flowers of double Pæonies and other hardy perennial plants, and a group of garden or decorative Roses in vases. Some of these early blooming sorts, as Rambler Purple East, Paul's Carmine Pillar The Dawson, and others, already made a glorious show of flower. Messrs. Paul also showed pot-plants of Rosa rugosa repens alba, curiously growing plants, that produce their large white single flowers in great profusion. From the same nursery were shown plants of Rhododendron "Essex Scarlet," a crimson-flowered variety, with black spotting; and cut flowers of other choice varieties. But by far the most distinguished exhibit from Messrs. Paul were sprays of the Giant Honeysuckle, Lonicera Hildebrandti, figured in the *Gard. Chron.*, Sept. 17, 1898, p. 219. These flowers were 5 ins. long, and open white, but rapidly assume an orange tint, and are very fragrant; Messrs. Paul's plant is growing in the border of a cool greenhouse, and the species is doubtless most at home when it has unrestricted space and can wander over a large area (Silver Banksian Medal).

HARDY PLANTS.

Messrs. GEO. JACKMAN & SON, Woking, in a collection of hardy and alpine plants had several species of Cypripedium in flower, Bletia hyacinthina, Orchis foliosa, Rhododendron Wilsoni, R. ovatum, both suitable plants for a fair-sized rockery; Delphinium nudicaule (Bronze Flora Medal).

Mr. M. PRITCHARD, Christchurch Nurseries, Hants, had a display of cut flowers from the border of herbaceous plants. Papaver Salmon Queen is exceedingly bright, in colour orange-scarlet; single and double varieties of Pyrethrum roseum, and of tree Pæonies, were effective; and we noticed a particularly good Ixia in I. crateroides major, colour rosy-red. Amongst the Spanish Irises, Thunderbolt was very distinct, with excellent flowers of shades of purple, bronze, and green (Silver Banksian Medal).

Messrs. R. WALLACE & Co., Kilnfield Gardens, Colchester, had a pot full of Incarvillea Delavayi, an exceedingly good variety, the colour being so good; also flowers of Lilium monadelphum, excelsum, and L. Hansoni. Irises, including varieties of I. pallida, of which Cypriana and Junonia may be recommended for their large size and pleasing colours; the pretty and elegant Heuchera micrantha rosea, H. brizoides, H. micrantha, and H. rosamundi ×, a cross between H. sanguinea and H. micrantha. A Calochortus is mentioned under "Awards" (Silver-gilt Banksian Medal).

Messrs. GEO. BUNYARD & Co., Maidstone, in place of an exhibit of fruit, showed a group of choice hardy flowers, amongst which Thalictrum purpureum was pretty; Papaver Beauty of Livermore, scarlet; Campanula glomerata dahurica, varieties of Pyrethrum roseum, and a large number of Rhododendrons and hardy Azaleas, were interesting.

Messrs. THOS. S. WARE, Ltd., Feltham, Middlesex, exhibited a very large group of hardy flowers, including almost every species now in bloom in the open ground. Owstrowkia magnifica, varieties of Papaver orientale, Ixias, and many others showed to good advantage (Silver Banksian Medal).

Mr. JAMES DOUGLAS, Great Bookham, Surrey, exhibited some very fine new Pinks, with large flowers. A purple and white variety was named Morna, and another one is mentioned under "Awards."

Messrs. DOBBIE & Co, Rothesay, N.B, exhibited several varieties of Verbascum hybridum, having flowers of purple and buff shades of colour.

The Rev. W. WILKS, M.A., Shirley Vicarage, Croydon, exhibited flowers of seedling Poppies, obtained from Papaver orientale and P. pilosum, in all of which the black base is greatly diminished, and in some there was even a faint sympton of a white base.

Tree Pæonies, Delphiniums, varieties of Pyrethrum roseum were shown largely by Messrs. KELWAY & SON, Langport Nurseries, Somersetshire. There were shades of colour to please all, but no new varieties were certificated. We shall doubtless witness further displays (Silver gilt Banksian Medal).

Mr. AMOS PERRY, Winchmore Hill, London, N., had an exceedingly gay exhibit of hardy flowers and plants. Particularly bright was a mass of Geum Heldreichi superba, the flowers being particularly good in size and colour; several varieties of Heuchera were shown, and brilliant forms of Papaver orientale, and many other species (Silver-gilt Banksian Medal).

Messrs. BARR & SONS, nurserymen and seedsmen, King Street, Covent Garden, exhibited hardy flowers in season, among which species of Iris predominated. There were likewise Hemerocallis Orangeman, with flowers lighter in tint than H. fulva; Genista sagittalis, having bright yellow-coloured flowers, the plant about 1 foot high, making pretty clumps or masses; Arum dracunculus, Cypripedium acaule, Iris sibirica Snow Queen, I. pallida Queen of May, rosy-purple; Cheiranthus Allioni, flowers of a deep orange tint; Double Welsh Poppy, Papaver cambricum, fl.-pl., rare, of a deep orange tint, &c.

Messrs. DOBBIE & Co., Rothesay, N.B., exhibited Aquilegias in great variety of colour—pink, yellow, lemon, blue, lilac, purple, and combinations of these colours, very graceful and airy-looking. The flowers were shown in light bunches in glasses set off by Maidenhair and their own foliage. The exhibit of this firm included a beautiful and extensive array of show, fancy Pansies, and self bedding Pansies, in very great variety. Of the latter, we may specify Mrs. T. W. B. Johnston, blue and dark purple; A. J. Rowberry, deep yellow; White Empress, a quite pure, almost eyeless flower; Seedling No. 10, of two shades of purple; Kintore, of a bronze colour; Shamrock, white, edged with blue; Niel McLean, bright purple; Hector McDonald, white with a rayed centre and purple edges (Silver gilt Flora Medal).

Messrs. J. VEITCH & SONS, Ltd., King's Road, Chelsea, S.W., showed a floor group, consisting of Pyrethrum roseum in variety, such as Model, J. N. Tweedy, La Vestale, Milton, Progress, Pericles, and others; also Iris and Aquilegias in variety; Heuchera sanguinea, very finely flowered specimens of Incarvillea Delavayi, and about two dozen splendid spikes of Eremurus robustus (Silver-gilt Banksian Medal).

The HARDY PLANT COMPANY, Keston (Mr. G. Reuthe), included amongst his collection of hardy plants and flowers, Eremurus robustus, Hypericum polyphyllum, Incarvillea Delavayi, Iris Susiana, Aster alpinus, Rhododendron Kamtschaticum, &c.

Mr. E. POTTEN, Cranbrook Nurseries, Kent, exhibited a mass of flowers of an improved variety of Trollius europæus, having large, showy flowers of much the same shade of colour as the type (Bronze Banksian Medal).

A fine lot of flowers of varieties of Irises was shown by the GUILDFORD HARDY PLANT CO., Guildford (Mr. R. Upton) (Silver Banksian Medal).

Another exhibit of hardy flowers came from Messrs. W. J. STOKES & SON, Hill Side Nursery, nr. Trowbridge.

MISCELLANEOUS PLANTS.

Messrs. W. BULL & SONS, King's Road, Chelsea, exhibited a plant of Agapanthus insignis, in habit similar to A. umbellatus, but the flowers are paler in colour; it was imported from S. Africa. Also Eremurus Olgæ, in a pot. Messrs. BULL & SONS had also an exhibit of Cordylines and Codiæums, in a group of well grown plants of the best varieties (Silver Flora Medal).

Mr. JNO. R. BOX, West Wickham, and Croydon, showed a double white Begonia named Mrs. Jno. R. Box, of very large size, and having prettily fimbriated petals.

Messrs. H. CANNELL & SONS, Swanley, Kent, exhibited the following good varieties of tuberous-rooting Begonias: Blush Queen; Dr. Littledale, orange-scarlet; Miss Deane, rose-pink; Gen. Baden-Powell, crimson; Lady E. Malet, salmon-pink; and Lady Dundonald, buff coloured. The firm had also a grand group of Aquilegias in great variety, being the most up-to-date representatives of the old Columbine (Silver Banksian Medal).

Messrs. B. R. CANT & SONS, Colchester, had as a background to their exhibit of cut Roses, some plants of the pretty Blush Rambler, and of Dorothy Perkins, both of which have been described in these columns (Silver-gilt Banksian Medal).

Messrs. F. CANT & Co., Braiswick Nurseries, Colchester, made a capital display in which Carmine Pillar, Gustave Regis, Rose of Apples (lovely pink colour), and Rosa rugosa fimbriata were conspicuous.

Mr. GEO. PRINCE, Oxford, showed some large sprays of flowers of nearly two dozen varieties of decorative Roses, another indication that, in spite of the ungenial weather, we may expect a full display of Roses shortly.

Mr. R. ANKER, Napier Road, Kensington, again exhibited a number of seedling and other Cacti, and those in bloom naturally attracted most attention.

Flowers of Bignonia grandiflora, from Dr. BONAVIA, Worthing, were beautiful specimens of this valuable climbing plant.

A. C. HARMSWORTH, Esq., Sutton Place, Guildford (gr., Mr. J. Goatley), put up a large floor group, consisting of forty-three plants of herbaceous Calceolarias, measuring from 2 feet to 3 feet in diameter, and averaging together with the pot 1½ foot in height. The plants were profusely flowered, and quite free from aphis. Few such plants in quantity are seen at shows now-a-days (Silver-gilt Flora Medal).

Messrs. J. GREEN & NEPHEW, 107, Queen Victoria Street, showed the Munstead Flower Glasses of various shapes, in green and colourless glass.

Mr. J. LION, Park Nursery, Stanmore, Middlesex, showed the Regal Pelargonium, Mrs. J. Lion, white, having a neat truss, and the plant very free blooming.

RONALD KEEP, Esq., Woollet Hall, North Cray, Kent, showed a small group of Gloxinias, Ferns, &c., the first named very finely flowered, and the flowers of good quality (Bronze Flora Medal).

Messrs. JAS. VEITCH & SONS, King's Road, Chelsea, exhibited a splendid group of Kalanchoe flammea in bloom, which having been obtained from cuttings, are throwing up inflorescences from leaf axils near the base of the stems. We have not observed this peculiarity in the case of plants raised from seeds.

FERNS.

Mr. H. B. MAY, Edmonton, had an exhibit of exotic Ferns, very interesting, not so much on account of the number as of the particular merits of a few new forms. Among these was a ramo-cristate form of Adiantum scutum, with broad fan-like ramifications of the fronds, a very handsome type of a species which has not varied much, unless A. Farleyense be a sport from it, as is assumed; this obtained an Award of Merit. Another novelty of less merit but distinct in its peculiarly dark metallic green colour, was Pteris metallica, but whether a new species or a varietal form of one previously known was not clear. The greatest novelty, however, was a densely congested and crispate form of Nephrolepis cordifolium, N. congesta, the specimens shown were only some 6 or 7 inches high, and extremely new and pretty. With the exception of N. Duffi, we believe no other dwarf form of this genus has been so far raised or introduced. N. Piersoni was shown from the United States, a bipinnate, broad-fronded form, already described in our columns. Polypodium Mayii, a true thoroughbred plumose form of P. glaucum, precisely on the lines of the Cambricum sport of P. vulgare, a grand variety, but unfortunately barren as usual in this type of variation. Other fine things were Pteris Childsii and Summersii, plumose and cristate forms presumably of P. serrulata, or one of the allied species. Asplenium Herbsti is a broad-fronded pinnate form, attributed to Asplenium nidus avis, though such an origin seems hardly feasible, despite the partly simple primary fronds, which impart a resemblance. Polypodium glaucum cristatum is interesting as having originated in same sowing as P. Mayii, the plumose type described (Silver Flora Medal).

Awards.

Adiantum scutum ramosum. — See under "Ferns." Shown by Mr. H. B. MAY (Award of Merit).

Calochortus pulchellus vera (Douglas).—The yellowish-green flowers shown are much larger in size than those

of C. pulchellus, already in gardens. It grows more than a foot high, and produces often eight or ten flowers from a growth, being unusually vigorous (Award of Merit).

Heuchera hybrida Rosamundi.—This fine Heuchera, exhibited by Messrs. WALLACE & Co., is a seedling from H. sanguinea, and H. micrantha rosea. The inflorescence grows 3 feet to 4 feet high, and is much branched; the flowers are pink in colour, and very effective (Award of Merit).

Kalanchoe × Kewensis. — This is another hybrid Kalanchoe, and will be widely appreciated, because the colour of the flowers is rich pink, being therefore quite distinct from the hybrids previously raised. In this case the hybrid is from K. Bentii and K. flammea. The plants are nearly 3 feet high, and have cylindrical foliage, similar to that of K. Bentii, which was collected in the Hadramaut in 1894 by the late M. Theodore Bent, and described as flowering at Kew in the *Gardeners' Chronicle*, June 23, 1900, p. 404 (figured in *Bot. Mag.*, t. 7765). The hybrid has a much-branched, paniculate inflorescence. It will be noticed that the crossing of the white-flowered K. Bentii with the bright orange-coloured K. flammea, has produced flowers of rich pink colour. Shown by Messrs. JAS. VEITCH & SONS (Award of Merit).

Pink "Rubens."—This is a very fine variety of Pink, the flowers of which are 2½ inches across; they are fragrant, and in colour white, except for faint markings of pink near the centre. Shown by Mr. JAS. DOUGLAS (Award of Merit).

Schœnia Cassiniana.—This annual species of Compositæ, from Australia, was introduced to this country more than half a century ago. It grows about 1½ foot high, has lanceolate leaves, 2 inches long or less, and produces corymbs of flower-heads ¾ inch across, in which the prevailing colour is pink. Shown by Messrs. HURST & SON, 152, Houndsditch (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (hon. sec.), de B. Crawshay, H. M. Pollett, J. Douglas, N. C. Cookson, W. A. Bilney, H. T. Pitt, A. A. McBean, F. W. Ashton, W. H. White, W. H. Young, E. Hill, W. Boxall, H. A. Tracy, H. Little, J. W. Potter, H. Ballantine, M. Gleeson, and J. G. Fowler.

Baron Sir H. SCHRODER, The Dell, Egham (gr., Mr. Ballantine), showed a fine group of rare Orchids, including Odontoglossum crispum Rex, a very finely blotched variety; O. c. xanthotes; O. c. Truffautiana, a handsome spotted variety, which secured an Award of Merit; O. c. roseum, and several fine white forms. An interesting plant was the original plant of O. × excellens, the same that was shown at the Orchid Conference in 1885. Also noted were a fine Cypripedium Stonei, and the extremely rare C. S. platytænium; C. × Antigone, C. callosum Sanderæ, C. Lawrenceanum Hyeanum, C. × superciliare, two fine specimens of Thunia × Veitchiana superba, Trichopilia crispa, Miltonia vexillaria gigantea, Hexisera bidentata, a splendid specimen of Maxillaria Sanderiana, the curious Dendrobium × illustre, in better form than it has been seen before; Epidendrum × Dellense, &c. Silver-gilt Flora Medal).

Captain G. L. HOLFORD, C.I.E., Westonbirt, Tetbury (gr., Mr. Alexander), staged a fine group of handsome Orchids, remarkable not only for their fine flowers, but for the excellent condition of the plants, the noble specimen of Odontoglossum luteo-purpureum, with two spikes of together over forty flowers, and enormous bright green leaves and fleshy bulbs, being pronounced the finest example of Odontoglossum culture ever shown. Also remarkably fine were Lælia purpurata Emperor, with a very large dark coloured labellum; L. p. fastuosa princeps, with sepals and petals veined with rose-purple, and a dark purple labelium; Lælio-Cattleya × Iolanthe, a showy hybrid of the L.-C. × Canhamiana section; L.-C. × Canhamiana Rex, L.-C. × Canhamiana Lady Wigan, and L.-C. × Tyntesfieldiense (Silver-gilt Flora Medal).

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), showed a fine group, in which were many fine Odontoglossums, the pretty orange-tinted Lælio-Cattleya × Adolphus superba, L.-C. × Canhamiana, Cypripedium Lawrenceanum hackbridgense, varieties of Cattleya Mossiæ, C. Mendeli Smeeana, C. intermedia violetta, with slate-blue lip; Lælia tenebrosa, Miltonia vexillaria chelseaense, M. Roezlii, a fine Vanda Denisoniana, V. tricolor, and other showy species (Silver-gilt Flora Medal).

Messrs. JAS. VEITCH & SONS, Chelsea, were awarded a Silver Flora Medal for an excellent group, in which were the beautiful Lælio-Cattleya "Our Queen," a charming hybrid, with blush-white sepals and petals, the lip having a showy violet-crimson blotch surrounded by a broad white margin; the pretty Epi-Cattleya × matutina, now given an Award of Merit; the pure white Sobralia macrantha Kienastiana, Lælio-Cattleya × Lycias, L.-C. × Aphrodite varieties, L.-C. × Ascania, Disa × Veitchi, Masdevallia × Curlei, with several flowers; the orange-coloured M. × Imogene, some grand specimens of Dendrobium Bensoniæ, Cattleyas, &c.

Messrs. B. S. WILLIAMS & SON, Holloway, secured a Silver Banksian Medal for a group of good varieties of Cattleya Mossiæ, C. Mendeli, hybrid and other Cypripediums, Platyclinis latifolia, Trichopilia crispa, Cymbidium Lowianum, &c.

Messrs. SANDER & SONS, St. Albans, staged a group, in which were noted Lælio-Cattleya × Isabella, L.-C. × Henry Greenwood, L.-C. × Canhamiana, L.-C. × Arnoldiana, Lælia × cinnabrosa, and Bletia Shepherdi.

F. WELLESLEY, Esq., Westfield, Woking (gr., Mr. Gilbert), showed a fine specimen of Cattleya Schilleriana, with two spikes of six and four fine flowers, and which had been grown by him for several years; also two distinct forms of Cattleya Mossiæ, Cypripedium × Annie Measures superbum, with the flowers more closely marked with purple than are other forms; and Lælia × cinnabrosa magnifica, of a rich reddish-scarlet colour.

J. WILSON POTTER, Esq., Elmwood, Croydon (gr., Mr. Young), showed Odontoglossum crispum Jeanette, a pretty spotted form.

Awards.

FIRST-CLASS CERTIFICATE.

Phaius × Chopmani superbus (Phœbe × Humbloti), from NORMAN C. COOKSON, Esq. (gr., Mr. H. J. Chapman).—A better form of the hybrid which obtained an Award of Merit at the Temple Show. Flowers larger and broader than the original. Sepals and petals cream-white, tinged with rose; lip broad, of a purple tint, with dark orange-red colour on the side-lobes.

AWARD OF MERIT.

Odontoglossum crispum Truffautianum, from Baron Sir H. SCHRODER (gr., Mr. Ballantine).—Flowers large, white, tinged with purple, the petals having clusters of reddish-purple spots, and the sepals one large blotch of the same colour. Lip white, with reddish markings.

Epi-Cattleya × matutina (Cattleya Bowringiana ♀, Epidendrum radicans ♂), from Messrs. VEITCH & SONS, Chelsea. — A singular and pretty hybrid, originally shown by Messrs. VEITCH, March 23, 1897, and illustrated in the *Gardeners' Chronicle*, April 10, 1897, p. 233. Although the seed came of Cattleya Bowringiana, the habit of the plant and the form of the flower, closely follow Epidendrum radicans. The flower as shown closely resembled that figured in our columns under the name of "Mrs. O'Brien," if it be not actually the same.

Odontoglossum cordatum aureum, from W. THOMPSON, Esq., Stone, Staffs. (gr., Mr. W. Stevens). In this, the brown colour of the type is suppressed, the flowers being yellow and white.

BOTANICAL CERTIFICATE.

Oncidium triquetrum, from H. T. PITT, Esq. (gr., Mr. Thurgood). A dwarf species from Jamaica, with neat sprays of whitish flowers tinged and striped with crimson.

CULTURAL COMMENDATION.

To Mr. Alexander, Orchid grower to Captain HOLFORD, C.I.E., for a magnificently cultivated plant of Odontoglossum luteo-purpureum, showing progressive improvement, the last bulb being of extraordinary size, and the young growth abnormally large. The plant bore two spikes of over twenty flowers each.

To Mr. W. Stevens, gr. to W. THOMPSON, Esq., for a splendid plant of a fine white variety of Odontoglossum crispum with several spikes.

To Mr. W. STEVENS, for Odontoglossum × crispo-Harryanum primulinum, with a large branched spike of over forty flowers.

Fruit and Vegetable Committee.

Present: H. Balderson, Esq., in the chair; and Messrs. Jos. Cheal, H. Eslings, S. Mortimer, A. Dean, E. Beckett, H. J. Wright, Geo. Kelf, G. Reynolds, J. Jaques, C. G. A. Nix, F. Q. Lane, J. Smith, J. Willard, Geo. Wythes, J. H. Veitch, O. Thomas, and A. H. Pearson.

Mr. Allan, gr. to Lord SUFFIELD, Gunton Park, Norwich, showed, through Mr. J. Coryton Roberts, Patentee, 24, Earl's Court Gardens, W., a new method of cultivating Strawberry plants. The receptacles in which the Strawberry plants were shown were earthenware bowls 1½ ft. wide and 9 inches deep. The bowls were arranged one above the other, and were connected by an earthenware tube in which is fixed a piece of gas-pipe so as to steady the structure. The bowls are afforded ample drainage, and the earthenware pipe or column affords an outlet for the water. The plants, which in the upper tiers were in full fruit, had been grown as shown. The method admits of a variety of treatment in Strawberry as in flower culture by amateurs (Vote of Thanks).

The best sample of Strawberry "The Leader" we remember to have seen was shown from the gardens of Countess PORTSMOUTH, Hurstbourne Park, Whitchurch, Hants (gr., Mr. R. Perry). In size and colour the fruits were equally remarkable.

Mr. ARTHUR LODGE, The Vineries, Mill Hill, showed twelve good bunches of Black Hamburgh Grapes (Vote of Thanks).

There were several collections of bottled fruits on view, serving to illustrate the lecture. These were shown by Miss MARY CROOKE (Lady Warwick's Hostel, Reading), which were Highly Commended; Miss JACKSON, 56, Montagu Square, London, W. (Highly Commended and Vote of Thanks); Mr. G. FOWLER, 19, Knightsbridge Street, Maidstone, who had also an improved sterilising apparatus (Vote of Thanks); Miss C. E. MARTIN WILLOWBROOK, Auburn, New York (Vote of Thanks); and Miss F. WILKINSON, Swanley (Vote of Thanks).

LINNEAN.

JUNE 4.—Mr. G. S. SAUNDERS in the Chair.

Dr. HOCKEN, F.L.S., of Dunedin, New Zealand, reminded the Society that the next biennial meeting of the Australasian Association for the Advancement of Science will be held at Dunedin, in January, 1904; and that the members would welcome any Fellows of the Linnean Society who might be able to pay a visit to New Zealand on that occasion; every facility for travelling at special rates to visit the celebrated scenery will be afforded by the New Zealand Government, and Dr. Hocken will be happy to give detailed information to prospective visitors.

Mr. R. MORTON MIDDLETON, F.L.S., exhibited a holograph letter from Linnæus to Philip Miller, dated Upsala, August 3, 1763, and read a translation of it. A few remarks were added by the General Secretary.

Mr. F. N. WILLIAMS, F.L.S., showed a series of 100 drawings of British Compositæ, twenty being Hieracia, drawn in pen-and-ink by Mr. E. W. Hunnybun, of Huntingdon, an accomplished artist and British field-botanist.

Mr. GEORGE MASSEE, F.L.S., showed a remarkable felted lining of fungus mycelium of a Polyporus taken from the interior of the node of a Bamboo; the specimen belonged to Sir D. Brandis.

Colonel GEORGE COLOMB sent for exhibition a fragment of a branch of a Thorn, which had been given to him by Mr. Thoms, gardener in Hyde Park. This branch shows the mischief done to Thorns near London by the larvæ of the Wood Leopard-moth, Zeuzera Æsculi, Linn. The house-sparrow was stated to destroy numbers of the perfect insect on their emergence.

Sir DIETRICH BRANDIS, K.C.I.E., F.R.S., F.L.S., showed herbarium and museum specimens, from Kew, of Gelsemium elegans, Benth., a plant possessing powerfully poisonous properties.

The second paper was by Mr. PERCY GROOM, F.L.S., "Notes on the Transition of Opposite Leaves into the Alternate Arrangement: a new factor in morphologic observation." The author stated that his observations began on Atriplex rosea, and to make a graphic representation of results, he plotted the length of the internodes in a given manner, which produced a regular curve; when this principle was applied to Chenopodium and Salsola, an entirely different result came out, and a zigzag course was plotted, due to the long and short internodes alternating. At first he suspected this might be due to its nearness to salt water; but inland specimens told the same tale, and neither the influence of day and night nor of salinity could account for it. His belief was that the fusion of branch and stem was the true solution, for axillary branches are given off, but without visible traces of the fusion which does exist; in Salicornia, for instance, the leaves are fused with the stem up to the next node above.

Continuing his observations, the author examined Scrophularia nodosa, which showed leaves opposite at the bottom, while the inflorescence was alternate; Symphytum showed the same, but Rhinanthus Crista-Galli presented a curious anomaly. The leaves were commonly opposite, but sometimes the tip showed a cleft, becoming distinctly bilobed, and then, by displacement, passing into the alternate arrangement. Lysimachia vulgaris first showed opposite leaves, then by the process last described, splitting at the apex and becoming distinct, a whorl of four leaves finally

appeared. The author laid stress on the fact that he had taken his examples at random, as they came to his hand, and were not specially selected. Although this was only a preliminary statement of the facts observed, it embodied a long series of observations.

THE HORTICULTURAL CLUB.

THE last monthly dinner of this Club took place at the Hotel Windsor, on Tuesday, the 9th inst., under the presidency of Mr. Harry J. Veitch; and subsequently Mr. Chas. T. Druery, F.L.S., V.M.H., read a paper on "Hybridisation and Selection." The chief object of the paper was to refute the idea which was largely promulgated at the recent American Conference on hybridisation, that all variation was induced by crossing between diverse species, thus ignoring the numerous natural "sports" in species which are solitary in the countries in which they are found, and hence cannot possibly owe their variability to such a cause. Mr. Druery instanced in this connection the causes of the extremely variable Athyrium filix-fœmina, Blechnum species, Scolopendrium vulgare, which are the sole representatives of these genera in this country, while the equally variable Polystichums are too much alike in structure to account for the innumerable forms they have assumed. He instanced the Cabbage, Brassica oleracea, as an example of extremely diverse and invaluable strains of vegetables being produced by continued selection of a perfectly pure species.

Mr. Druery concluded by detailing the special difference between the processes of variation proper, and that induced by hybridisation, protesting against the use of two different terms, hybridising and crossing, since the operation was essentially the same, and it was only the subjects which differed. Messrs. May, Veitch, Bunyard, Waterer, Cook, Mooro, and others, participated in the subsequent discussion, and considerable stress was laid on the importance to the hybridist of the future of Mendel's laws, which certainly brought principles to light which were invaluable for their guidance, and tended greatly to lead to that systematic work which was essential to valuable results.

TRADE NOTICE.

MR. W. JENNINGS, late gardener to H. Agnew, Esq., Warford Hall, Alderley Edge, has commenced business as nurseryman, seedsman, and florist, at Knowles Green, Mobberley, Cheshire.

ANSWERS TO CORRESPONDENTS.

AMPELOPSIS DYING OR DEAD: *A. E. S.* The soil sent is poor inert stuff, not calculated to maintain a Virginian Creeper in health or vigour. The plant moreover requires a rich soil, and much moisture in the soil in the summer season. Have the roots penetrated into a drain, or gone too deeply beyond the reach of air?

APPOINTMENT IN ROYAL GARDENS: *Ambitious.* In the case of the Royal Botanic Garden, Kew, application, with copies of testimonials, must be sent to the Curator; and in the other cases to the head gardeners.

ARTIFICIAL MANURES FOR APPLYING TO CABBAGES: *E. R.* Kainit 2½ lb., sulphate of soda 1 lb., sulphate of ammonia 1½ lb., superphosphate 2½ lb., these may be applied per square rod. If the land is very deficient in lime, a small quantity other than that present in the superphosphate may be applied. The above dressing may be applied after transplanting. If very large heads are desired, a few applications of water containing 1 oz. of sulphate of iron, and 2 oz. of sulphate of ammonia in 1 gal. of water may be applied.

CARNATIONS: *Carnation.* Some check to growth has occurred, but how occasioned you ought to know better than we can tell you.

CARNATIONS DYING-OFF IN HEAVY LAND: *H. Bastow.* In your case the Carnation-beds should be raised 6 inches above the surrounding level, underlaid at the depth of 18 inches with rubble, chalk, coarse coal-ashes, &c., and the soil of the bed lightened with road-grit or coarse sand—sea-sand if you can get it. The surface of the bed should be given a slight slope to the sides. The plants might, of course, be wintered in pots and planted-out in March; still, the treatment of the beds should be such as we advise.

CORRECTION. In the Orchid-houses calendar in the *Gardeners' Chronicle* issue for June 6, it should have been mentioned that all the Cypripediums, concolor, niveum, and bellatulum, should receive the same kind of treatment as to the application of water and overhead syringing. For compost for Ada aurantiaca read turfy-peat two-fifths, not as inadvertently written, turfy-loam. A similar mistake was made in the calendar for February 21, in giving the sort of compost for Lælia anceps, loam being mentioned as being suitable instead of leaf-soil. *H. Alexander.*

FERNS: *L. M. B.* The Ferns seem to have had a check in their young stage of growth. Probably the temperature of the house in which they were grown got too low during the cold weather that we had some time ago.

FIG. 148.—BLADDER PLUMS, CAUSED BY A FUNGUS.

FIGS: *H. R. L.* Your fruits are attacked by a fungus, Botrytis cinerea; try spraying with liver-of-sulphur, ½ oz. to one gallon, when the fruit is quite small.

FOXGLOVE: *J. Hasler.* A very common malformation; 80 or 90 per cent of the seeds will come true.

GRAPES BROWNED AND SPOTTED: *Barnum.* The "spot" disease, caused by a fungus, Glæosporium læticolor. Cut off every affected fruit and burn. There is no known cure. As a precaution spray with water and liver-of-sulphur, at the rate of 1 gallon of the former and ½ oz. of the latter.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.—Hurst & Sons.* The "Everlasting" is Schœnia Cassiniana, Steetz.—*W. D.* sends more than six specimens; the least he can do in return is to send a small contribution to the Gardeners' Orphan Fund. 1, Lotus corniculatus; 2, Saxifraga, probably granulata; 3, Nepeta glechoma; 4, Potentilla Tormentilla; 5, Geranium Robertianum; 6, Stellaria Holostea; 7, Lamium purpureum; 8, Barbarea vulgaris; 9, Conopodium denudatum; 10, Vicia tetraspermum; 11, Hieracium; 12, Lychnis vespertina; 13, Fumaria officinalis; 14, Veronica chamædrys.—*A. M.* Erysimum Perofskianum.—*Hortus.* The Saxifragas are: 5, Whitlavi; 6, Cæspitosa; 7, flowers had all perished.—*H. T., Malton.* 1, Lycaste Deppei; 2, Dendrobium moschatum.—*A. B.* A singular form of Odontoglossum crispum, and a variety of Odontoglossum × Adrianæ.—*B. S. L. B.* Vinca rosea; it may be white, or rose, or with a coloured centre as in yours, which is called "oculata" in gardens.—*Veritas.* Vanda Roxburghi.—*Box marked Butler.* No communication. Lælia purpurata and Cattleya Mendeli.—*E. A. T.* 1, Odontoglossum Andersonianum; 2, Epidendrum fragrans.—*G. H.* sends no fewer than 13 specimens, mostly bad, all withered, and badly labelled. G. H. should, in compensation for our trouble and loss of time, send us a small donation for the Gardeners' Orphan Fund. 1, Liriodendron Tulipiferum; 2, Populus alba; 3, cut-leaved Beech; 4, Cupressus, with no cone, perhaps C. sempervirens, but impossible to be certain from such a scrap; 5, Pseudotsuga Douglasii, Douglas Fir; 6, Cratægus tanacetifolia; 7, Pittosporum Tobira; 8, Berberis Darwini; 9, Prunella vulgaris; 10, Muscari comosum; 11, Ægopodium Podagraria; 12, not recognisable; 13, Vinca minor.—*A. B. R.* 1, Helianthemum vulgare variety; 2, Cotoneaster affinis; 3, Epilobium rosmarinifolium; 4, Geranium pratense; 5, Sedum acre variegatum; 6, S. glaucum; 7, Herniaria glabra.—*Flowering Shrub.* Ceanothus rigidus.—*W. B.* 1, Leptospermum scoparium; 2, Spiræa media; 3, Euphorbia cyparissias; 4, Saxifraga sps.; 5, Prunus Padus; 6, Polemonium cœruleum.—*D. S.* Hyacinthus or Muscari comosum.—*Dendrobe.* 1, Cistus creticus; 2, Lychnis viscaria, double-fl.; 3, Teucrium variegatum; 4, Lonicera japonica.—*H. R.* 1, Fraxinus ornus; 2, Reseda luteola; 3. Polemonium cœruleum, white variety; 4, Pulmonaria officinalis; 5, Corydalis lutea; 6, Thalictrum aquilegiifolium.—*Mrs. Horne.* Epipactis grandiflora, British Orchid growing on chalk. As a rule, we do not reply by post.—*A. M.* 1, Retinospora plumosa aurea; 2, Olearia Haasti; 3, Muscari comosum; 4, not recognised; 5, Allium; 6, Hemerocallis graminea.—*J. M.* 1, Phyllocactus crenatus variety; 2, Clematis flammula; 5, Ribes without flowers; others next week.—*J. P. & Sons.* Buddleia globosa.

PEACH FRUITS DEFORMED, AND FALLING OFF: *Hornsea.* See answer to "*M.*," and "*B. & Sons,*" p. 368, in our last issue, under heading "Nectarines Deformed."

PLUM: *R. E. T.* What you send is the so-called Bladder Plum. The deformity is caused by the attack of a mildew, Exoascus deformans (see fig. 148).

TWENTY-FIVE VARIETIES OF PELARGONIUMS FOR MARKETING PURPOSES: *Correspondent.* Pelargoniums now on sale in Covent Garden Market (pot plants). 1, Dorothy; 2, Alice Hayes; 3, Triumphans; 4, Crimson King; 5, Tommy Dodd; 6, Kingston Beauty; 7, Duchess of Bedford; 8, Rob Roy; 9, Fanny Eden; 10, Jubilee; 11, Purity; 12, Emma Hayes; 13, John Bright; 14, Integrity; 15, Mrs. Hollingsworth; 16, Fireman; 17, Mrs. Perkins; 18, Robert Green; 19, Comet; 20, Minnie; 21, Menuice; 22, Madame Thibaut; 23, Ethel; 24, La Reine; 25, James Veitch.

VINE LEAVES CRIPPLED: *S. B.* The bad season is answerable for the check to growth.

COMMUNICATIONS RECEIVED.—Harwood Brierley.—J. D.—G. B.—J. B.—J. H. G.—W. L.—G. McClure, St. Louis, with thanks—C. P. R.—Sutton & Sons.—H. J. C.—M. A.—J. W.—E. G.—Grimwade.—A. G.—J. W. M.—J. W.—G. B.—A. W. W.—W. D., Egypt.—Gwyder, Wembly.—G. E. McClure, Missouri Botanical Garden.—M. D.—R. M.—H. W. W.—E. C.—E. Stokes.—W. M.—S. A.

MARRIAGE: BULL—VALE.—On June 6, at St. Luke's, Chelsea, by the Rev. L. McNeill Shelford, M.A., William, the eldest son of the late William Bull, F.L.S., and Mrs. Bull, of Belmont, Edithgrove, S.W., to Ada (Winnie) Vale, only daughter of the late Robert Vale and of Mrs. Tancock, of 135, Selhurst Road, South Norwood

(*For Markets and Weather, see p. x.*)

Œnothera cæspitosa (marginata): Flowers White, reduced about one half.

THE
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SWEET VIOLETS AND PANSIES.

THIS attractive title is attached to an attractive book, written by several authorities, edited by E. T. Cook, and published at *Country Life* Office, Tavistock Street, Covent Garden. It forms an octavo volume of about a hundred pages, elegantly got up, with good paper and print. The illustrations are not so satisfactory. In spite of the attempts of the old school of florists to spoil, or as they would say to "improve" the Pansy, it remains a popular flower. It deserves to do so, for it is of easy culture, is not exacting in its requirements, may be grown in pots, in borders, in beds, in the greenhouse, on the balcony, in the window. It is not costly, whilst its rich and varied colouring, and its quaint form, endear it to all flower-lovers.

The natural form of the Pansy, as of all Violets (fig. 152), is markedly irregular: the upper portion of the flower is larger and different in form and colour from the lower, while the two sides are alike. There are good reasons for this, the study of which lends additional interest to the flower-lover. It seems, then, hardly consistent with good taste to decree that the flower shall be circular, a form that Nature did not intend in the case of the Pans. Abortions and deformities are, it is true, often highly interesting to the botanist, and are sometimes not without beauty; but the beauty is then developed in spite of, and not in consequence of, the acquired deformity. The effort should surely be to develop the natural form, enhance its beauty if possible, and not to induce a shape that is abnormal. The editor of the present volume has done well to reproduce at p. 23, Miss Jekyll's remarks — remarks with which we are in full sympathy, though even she omits allusion to the significance of the beauty she admires, and by ignoring the reason why "of all the little tender tricks and ways," deprives herself of much that appeals to the intellect, as well as to the senses—

"The poor Pansies have single blooms laid flat on white papers, and are only approved if they will lie quite flat, and show an outline of a perfect circle. All that is most beautiful in a Pansy—the wisp-like curves, the waved or slightly-fluted radiations, the scarcely perceptible undulation of surface that displays to perfection the admirable delicacy of velvety texture, all the little tender tricks and ways that make the Pansy one of the best loved of garden flowers—all this overlooked, and not only passively overlooked, but overtly contemned. The show Pansy judge appears to have no eye, or brain, or heart, but to have in their place a pair of compasses with which to describe a circle! All idea of garden delight seems to be excluded, as this kind of judging appeals to no recognition of beauty for beauty's sake, but to hard systems of measurement and rigid arrangement and computation, that one would think more applicable to astronomy or geometry than to any matter relating to horticulture."

A more catholic and less exclusive spirit is now happily manifesting itself, as is shown at our Chrysanthemum shows and Rose exhibitions. The artistic sense and intelligence of the general public are gradually bringing about from the outside a reform which should long ago have come from within, and are at least compelling exhibitors to admit practically that their system of "properties," and their methods of exhibiting, however suitable for certain limited purposes, are not those which appeal most to the public, still less to the refined and cultivated intelligence of the most competent judges. Our horticultural societies, instead of leading in this matter, and setting an example, have slavishly conformed to arbitrary rules, which the better taste of the public decries.

The so-called "tufted" Pansy originated as a cross between Viola cornuta and the garden Pansy. They are not "tufted" in the ordinary sense of the word, but spreading in habit, and as they are principally used for bedding, perhaps the term bedding Pansy would be the most appropriate. Sticklers for English names might object to Pansy as being an English perversion of the French Pensée. "Heartease" would be more to their taste. In either case the matter is unimportant. When some three or four decades ago the rage for crude, glaring colour, and plenty of it, began to give place to a feeling for more subdued harmonies, the process was greatly helped by the use of such plants as Silene pendula, and bedding Pansies. The spring beds at Cliveden, suggested by a former Duchess of Sutherland, and carried out under the care of the late Mr. Fleming, were then the admiration of all who saw them. Since then, owing to the labours of Mr. W. Dean and Dr. Stuart, both of whom have passed away, the range of beauty and variety has been greatly extended, and so popular have the bedding Pansies become that in some gardens that we know they are even used in the Rose-beds as a "carpet." This is very shocking, no doubt, to the rigid rosarian, but no one wishes to deny him the pleasure of gloating over his mop-sticks in the garden, and his green boxes on the exhibition-table, so long as he is willing to accord to others the privilege of growing and of showing in some less formal and more natural way.

As for the ordinary sweet Violets, they are everyone's pets, and whilst there is no denying the assertive claim of the bigger varieties which have come into fashion, like the Czar, Princess of Wales, and others, we could spare them sooner than the more humble Russian Violets of our childhood. The hint given in the volume before us to take up the old plants, pull them to pieces and replant them, is one that is too often neglected. The production of runners ought to enforce the lesson, but it does not always do so. The Violet, for some reason or other, is becoming more and more difficult to grow in the neighbourhood of large towns. What the precise cause may be, whether deficiency of light, deficiency of atmospheric moisture, or impurity of the air, it is not possible to say. In our own experience in the suburbs of London, the Violets grow well enough—too rampantly, but they do not flower as they used to do; and we believe some of those cultivators who used to grow largely for market in the vicinity of London find themselves now unable to do so with profit. Red-spider is in some places a tiresome pest, but that is not the reason for the deficiency of flower in our case.

No mention is made in the work before us of the moulds which infest the Violet. One such, the Cluster-cup, known as Æcidium violæ, we are induced to mention, in order to relate an editorial experience. Year after year, for several years, a lady correspondent sent us leaves affected with this fungus, to prove, as she said, that she had been instrumental in raising a cross between a Fern and a Violet. It was of no use our expressing a doubt as to the possibility of such a cross, of no avail to give her the name of the fungus which gave rise to the impression, and endeavour to explain its mode of growth. Did not the Violets grow beneath the shelter of a Fern, and were not the Fern-spores on the leaves of the Violet? It was nothing but obstinate prejudice on our part that prevented us from seeing the case in the same light as our correspondent. Well, we remain of the same opinion still, and our correspondent no longer sends us the "cross between a Fern and a Violet!"

One very important omission from the volume before us we may mention, in the hope that it may be remedied in a future edition. No allusion whatever is made to Dr. Wittrock's exhaustive *Contributions to the History of the Pansies, having special reference to their Origin.* The original, published in 1895, it is true, is in the Swedish language, but as an English summary is added containing an epitome of the history of the Pansies of all descriptions from the sixteenth century to the time of Dr. Stuart; and as very numerous illustrations are given, as well as a copious

index, and full references to the literature in all countries, the omission of all notice of it in the present book is a serious one, and one that can hardly be excused on the ground of the difficulties imposed by the language. Long extracts from Dr. Wittrock's summary specially interesting to lovers of florists' flowers, as well as to the botanist, were given in our volume for 1895.

As a monograph of a botanical group, treated from the horticultural side and from a florist's point of view, we know of none to equal Dr. Wittrock's "contributions." At the same time, from the standpoint of the cultivator, the present volume supplies a deficiency of which many must have experienced the sense.

NEW OR NOTEWORTHY PLANTS.

SCILLA (LEDEBOURIA) AXILLARIS,

*C. H. Wright, sp. nov.**

THIS is one of the most robust species of this genus. Its leaves are 1 foot long, by 2½ in. wide, a bright green, with many small brownish-purple spots on the lower surface near the base, and a few large ones of a similar colour on the upper surface near the apex. The many-flowered raceme is produced at the same time as the leaves, and from the axil of one of the outer ones. The perianth-segments are white, keeled with green on the outside, and deep but bright violet, edged with white on the inside. The nearest ally is the South African S. microscypha, Baker, which has more acuminate leaves, and the perianth green on both surfaces.

ALPINE GARDEN.

ALYSSUMS.

I DESIRE to draw some attention to a valuable class of alpine flowers, but in doing so must premise that the term "alpine" is used in its broad horticultural meaning—always open to criticism, of plants suitable for growing on rockwork, and generally of dwarf stature, but not necessarily from high altitudes. The dwarf Alyssums, or Madworts, comprise a number of plants of great beauty; some being characterised by brilliant though small yellow flowers, while others are prized for their white blooms, or for the silvery or greyish tones of their foliage. One cannot hope to enter upon a full description of, or even of a reference to all the dwarf members of the genus, but mention will be made of the most useful and readily procurable species and varieties of perennial habit.

Foremost, perhaps, because of its bright colouring and the effect produced by large masses, must come A. saxatile, the Rock Madwort, or "Gold Dust" as it is sometimes called, whose golden flowers, though individually small, are so numerous that they hide the grey foliage by their sheets of bloom. It delights in a light dry soil and a sunny position, where it will last for years in good condition, although it is all the better for being cut back after flowering; it is easily raised from seed, or propagated by cuttings. Even more desirable for our purpose is the variety called compactum, but this is not so easily obtained true as some think, a plant indistinguishable from the type being often supplied for it. It blooms with as much freedom as the typical A. saxatile. This, unfortunately,

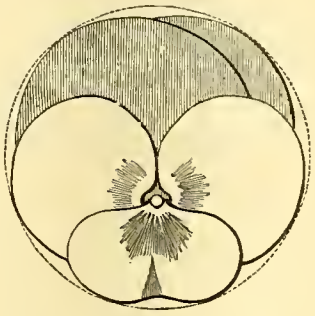


FIG. 149.—THE FLORISTS' IDEAL PANSY. (SEE P. 385.)

FIG. 150.—VIOLET PRINCESS OF WALES. (SEE P. 385).

cannot be said for a still dwarfer and more compact form, called A. s. Tom Thumb, which is a neat rock plant, but does not flower well, and must be afforded an even drier and sunnier position than the others.

A sulphur-coloured form of A. saxatile, named citrinum, is very pleasing on the rockwork; and those who like variegated plants will appreciate a variety, which is prettily variegated with creamy-white, but, like most variegated-leaved plants, it is not so free in bloom as the type or the variety compactum. The double form is proving a great acquisition, being quite as effective as the type, and lasting longer in bloom. It is one of the most valuable introductions of recent years, and has probably a long career of usefulness before it.

Of more erect habit, and not so useful where a close mass of bloom is required, is A. gemonense, a pleasing yellow Madwort, which with me flowers twice a year, in spring and autumn, though this floriferousness is frequently obtained at the expense of the plant, which does not always survive the winter after this strain upon its constitution. It, however, seeds itself so freely that the loss of old plants is of little consequence, and one generation succeeds another with perfect constancy.

A. s. sulphureum is a pretty, pale-coloured variety which has become somewhat popular within the last few years. Under the name of A. corymbosum I have an Alyssum of somewhat similar appearance to A. gemonense, but a true biennial here, though it seeds so freely as to be practically a permanent occupant of the garden.

In such Alyssums as A. montanum we have a class which more nearly approaches the standard of many cultivators of alpine flowers, inasmuch as it is dwarfer, and only rises 3 or 4 inches above the soil. It is a pretty little plant, which makes a clump of hoary foliage, from a little above which are produced in early summer its small yellow flowers. It is more impatient of wet in winter than the others already named, but is hardy enough in favourable seasons. A little more tender, but hardy also under anything but exceedingly unfavourable conditions, is A. serpyllifolium, a pretty Alyssum with a rather prostrate habit, the grey leaves being small and neat, while the little blooms are yellow also. These two should be propagated by seeds or cuttings.

A recent introduction I saw in the Edinburgh Botanic Garden recently. This was named A. idacum, probably a clerical error for idæum. This appears to be a plant likely to be useful when established. It has greyish foliage and heads of yellow flowers, which seem as if they would make a good effect when in a mass.

A better known species is A. alpestre, about 4 inches high, which has also the greyish leaves and yellow flowers of the greater number of the species. Others with yellow flowers, and all suitable for our rock-gardens, are argenteum, about 9 inches high, and flowering in April or May; lencadeum, an Italian species, rather tender, and about 1 foot high; Mollendorffi, Beck, a very dwarf plant, not often seen, and flowering from June onwards; orientale, a May bloomer, and about 1 foot high; the rather tall Wierzbicki, flowering about the same time as Mollendorffi, and about 1½ foot in height. Other yellow-flowered species of more or less hardiness are ovirense, rostratum, and tortuosum. Some of these are not in cultivation in Great Britain, but are grown on the Continent.

The white-flowered perennial species of merit in cultivation are not numerous. The best of these appear to be A. spinosum and A. pyrenaicum. The former is a beautiful little silvery-leaved plant, about 3 or 4 inches high, with small heads of white flowers; it is more to be prized for its foliage than its bloom. It does not appear to be very long lived, and it should thus be propagated annually, either by seeds or cuttings. A. pyrenaicum, a very dwarf plant, is also in cultivation on the Continent, but I have not met with it in these islands for some time. It was, up till lately at any rate, grown at Messrs. Backhouse's York nurseries, in a crevice on the south side of a rockery, and well jammed in between stones, and kept top-dressed. Another white-flowered species offered in some nurseries is A. podolicum.

* *Scilla* (§ *Ledebouria*) *axillaris*, C. H. Wright.—Bulbus ovoideus, 2 poll. diam. Folia elliptico oblonga, acuta, basi paullo contracta, synanthia, basi subter maculis parvis brunneo-purpureis, supra prope apicem maculis 3–7 lin. longis notata, 1 ped. longa, 2½ poll. lata. Racemus axillaris, multiflorus, 9 poll. longus, bracteis parvis subulatis; pedicelli albi, 7 lin. longi. Perianthii segmenta 3 lin. longa, ¾ lin. lata, oblonga, apice minute cucullata, extus alba, viride costata, intus violacea, marginibus angustis albis. Filamenta atro-purpurea. Ovarium trilobatum, conicum, basi in disco expansum; ovula in quoque loculo dua; stylus atro-purpureus.

Cultivated in the Royal Botanic Gardens, Edinburgh. Native country unknown.

The greater number of the Alyssums seem to flower most freely on limestone rockwork, on the chalk, or in places where limestone or old mortar is incorporated with the soil. Generally they are of easy cultivation, though it is always desirable to keep a reserve plant or two of the choicer species. The more showy ones appeal to the many, but the dwarfer and quieter species have attractions of their own which commend them to the connoisseur. *S. Arnott.*

BULBOUS PLANTS FOR THE CONSERVATORY.

(*Continued from p.* 326.)

HERBERTIA PULCHELLA.—I have only once seen this excellent Irid in flower, but it was sufficient to convince me that were it more widely known, no collection of cool-house bulbs would be complete without it. Of easy culture, and owing to its continuity of flowering, and delightful colours, it takes a place in the front rank of bulbous plants suitable for pot culture. The Tigridia-like flowers are blue, with yellow blotches, and begin to unfold in June, lasting many weeks. Six bulbs in a 32 make a sufficient display. A suitable compost consists of equal parts of loam, leaf-soil, and coarse sand. Peat has been recommended, but it is better omitted, and leaf-soil employed instead, as then the flowers seem to be of better texture, and last somewhat longer.

IXIAS, BABIANAS, TRITONIAS, AND SPARAXIS.

A bulbous plant more light, graceful, and beautifully coloured than the Ixias would be extremely difficult to find, but it is seldom that Ixias are grown as extensively as they deserve to be. It is difficult to account for this, bearing in mind the very reasonable price charged for bulbs, the ease with which they are grown, and the rich display they give in return for so little labour bestowed upon them. For conservatory decoration they are extremely useful, their long, tough, thin stems surmounted with flowers of uncommon shades of colour, are also useful for the decoration of vases, and for conservatory display in pots. Bulbs to the number of eight in a 48-sized pot make a good show. A suitable compost for them consists of loam two parts, leaf-soil two parts, and sand one part; pot moderately firmly.

A suitable place for Ixias when repotted is a cool frame, standing the pots on a floor of coal-ashes, with just sufficient water afforded as will keep the soil moist until they have made enough growth to justify more moisture being applied. On no account should they be coddled in a close atmosphere, this being very injurious. There are some fifty varieties catalogued, and the colours range from white to deep maroon. A very striking variety is I. viridiflora, of a pale green tint, and the flower has a black centre. Sparaxis, Tritonias, and Babianas, all require similar treatment to the Ixias, and are worthy of being included in a list of greenhouse bulbs.

ISMENE CALATHINA (SEA DAFFODIL).

These uncommon bulbous plants though of the easiest cultivation are rarely met with in private gardens. Their white flowers of delicate fragrance, and possessing a fringed corona, never fail to excite the attention of the beholder. Ismene sulphurea has sulphur-coloured flowers; the treatment is similar to that of Elisena.

MUSCARI.

The species of Muscari are of easy culture in pots, and for the adornment of the conservatory in the spring months they are worthy of the gardener's attention. M. botryoides, the blue Grape Hyacinth, is a pretty flower; M. b. grandiflora has larger flowers than those of the type; and M. b. alba has racemes of white flowers. M. comosum monstrosum has large racemes of blue flowers, whose barren flower-stalks entitle it to be called the "Feathered Hyacinth," a name by which it is commonly known; it is a beautiful flower and a general favourite. M. Heldreichi, armeniacum, azureum, compactum, atlanticum conicum, latifolium, moschatum, and several others are all valued for the great attractiveness of their flowers.

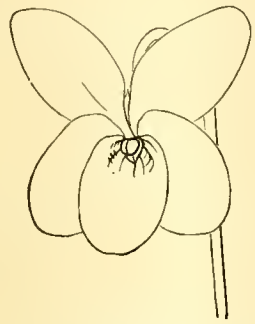


FIG. 151.—VIOLET CALIFORNIA. (SEE P. 385).

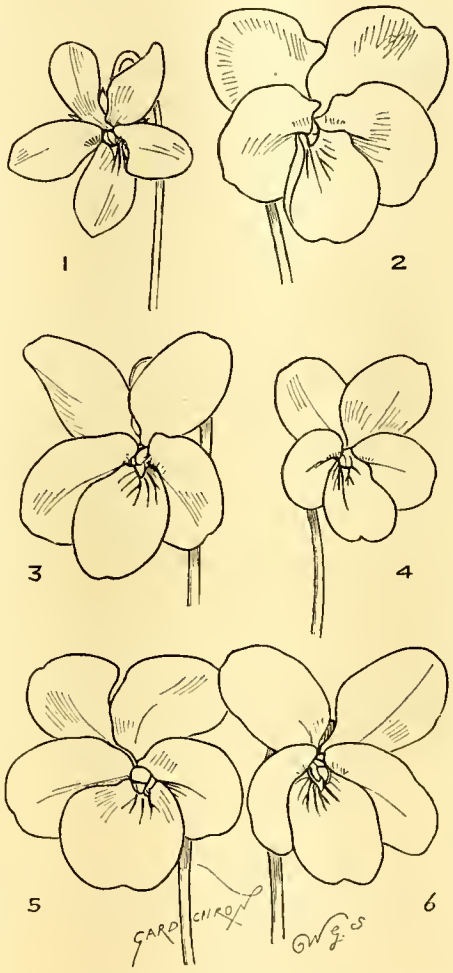


FIG. 152.—VARIETIES OF VIOLET.

1. V. odorata, typical.
2. V. Princess of Wales.
3. V. primavera.
4. V. Amiral Avellan.
5. V. Princess Beatrice.
6. V. Italia.

(SEE P. 385.)

NERINES.

Nerines are considered to be shy flowering, but given proper treatment they afford a brave show at a season when few other bulbous plants are in flower. Nerines suffer from disturbance at the root and a close ill-ventilated house, and succeed in relatively small pots, and when thoroughly exposed to sunshine during the summer months. In cool summers the bulbs are the better for being placed in a garden frame, and the sun allowed to shine full upon them. N. sarniensis, N. pudica, N. rosea, N. flexuosa and its var. alba, N. Fothergilli, and N. Fothergilli major, are all well worthy of cultivation.

VALLOTA PURPUREA (THE SCARBORO LILY),

so often seen in perfection in cottage windows on the south coast, is a somewhat difficult bulb to flower in or around London. It is said that sea air is necessary to flower it in perfection, but that statement is scarcely convincing, as in gardens situated far inland, the Vallota may be observed in splendid condition. Root disturbance is injurious to this species, and a somewhat dry condition of the soil and exposure to full sunshine are favourable to fine flowering, judging from specimens that I have observed which have grown in the same pot for fifteen years without being disturbed. Information concerning the successful cultivation of the plant in or within ten miles of London, would be welcome to myself as well as to others.

Other genera, such as Albuca, Brodiæa, Hæmanthus, Brunsvigia, Eucomis, Hessia, Hypoxis, Phædranassa, Placea, Romulea, Puschkinia, Watsonia, and many others have charms to suit the most fastidious of tastes. *J. W. Miles, Isleworth.*

NOTICES OF BOOKS.

DIE EINFÜHRUNG AUSLANDISCHER HOLZARTEN. VON JOHN BOOTH. Berlin: Verlag von JULIUS SPRINGER. (*The introduction of Exotic Timber Trees into the Prussian State Forests under Bismarck and others.*)

IN this 8vo book of 111 pages of text, and numerous process illustrations, are to be found severe indictments of German foresters for their neglect of a number of eminently useful, mostly North American, timber trees, capable of withstanding the rigours of a northern Continental climate. Many of the charges of neglect might equally well be brought home to English foresters and owners of woodland, as most, if not all of the trees named—viz., Tulip-tree, Black Walnut, Acacia, Weymouth Pine, Douglas Fir, Sugar Maple, Prunus serotina (Grape-Cherry), American Oaks, and a great number of woods of lesser value—succeed in their European homes, making good growth and useful timber. So well, indeed, have some species done, that the French Government, at the beginning of the eighteenth century, had under consideration extensive plantings in French forests. These questions were repeated in the course of time, also in Germany, but only officially in France were steps taken in this direction. But nowhere else than on the large landed estates and parks and gardens of the nobility, and in other parts of Europe, were the fine trees of N. and N.E. America planted in any quantity till the beginning of the nineteenth century. By that time, the naturalisation of N.E. American species had been fully accomplished, and the results published.

The first question a forester will ask, "Is the tree suitable for our climate, and will it succeed in almost any kind of soil?" Very natural questions where large areas are to be planted. In order to determine these points, an extraordinary long period of time was wasted, for the State authorities, who had to do with this question of naturalisation and suitability, were, till about the end of the previous century, in complete accord that the introduction of exotic timber trees into German forests was a mistaken operation. Very little was known about these species, and still less about their raising and cultivation. Even Juglans nigra (Black Walnut)

which had been introduced for two centuries, and was known to be hardier than the common Walnut, and the wood handsome and very durable, was objected to. The same or worse condition of things existed in these islands, and though the Douglas Fir, the greatest introduction of Douglas' from N.W. America, seventy years ago, was well known as a fine timber-tree, a comparatively small area of forest of this species exists. Yet it is well known that this Fir attains to magnificent dimensions in the primeval forests of that country—trees of many hundreds of years old, and grows quickly into timber in Europe. And the same neglect attaches to the planting of the other species of American timber trees, and that, too, in spite of the matter of the complete naturalisation of the plants having been disposed of.

It was, says the author, a piece of good luck that Prince Bismarck was enabled, for a series of years, to watch the progress of a number of state-ordered experiments at Friedrichsruhe. These were under the charge of the head forester Lange, who was greatly interested in them. Had the Prince retired, or died, passive bureaucratic resistance would have hindered or killed the experiments, notwithstanding the great interest felt by the heads of the forest office, and numerous head foresters.

Some capital pictures of the Douglas Fir illustrate the book, including the Flottbeck, the Jägerhof, and the Oldenburg trees. The value of the wood of this species in England and Scotland is stated to be as high as that of the best Larch, viz., 1s. per cubic foot; its rate of growth rather quicker, examples being given of twenty-seven-year-old trees containing 27 cubic feet, fetching at auction sales as many shillings, so that the annual increase in value was equal to 1s. per year per tree.

With regard to American species of Oak, though quicker growers than Quercus robur varieties, these are not to be compared as regards the quality of the timber with the latter. In regard to the many purposes for which the wood can be employed, Q. rubra is of greater general usefulness. For example in cabinet-work, it being easy to work, and of fine texture and appearance, and no reason exists why this species and other American Oaks should not be introduced in quantity into German and into British woods. Juglans nigra (Black Walnut) is, as we have said, another much-valued wood. The tree grows rapidly, and makes heart-wood at an early date; is excellent for the cabinet-maker, is very durable, yet easily worked, and greatly in demand, as witness the importation into Hamburg in the eight years 1893—1900 of Black Walnut of the value of 37,550,000 marks, about five million marks more than all the most valuable woods from S. America. The price of imported Black Walnut per cubic foot ranges from 182 to 200 marks. Much of this timber might be grown at home.

The wood of Prunus serotina competes in beauty with that of the Black Walnut, and can be used in the finest cabinet work and furniture. The species is almost unknown in Europe. Forester D. Krüger, of Dessau, stated in the *Forst and Jagdzeitung* for December, 1901, p. 719, that in Hamburg the cubic meter cost from 200 to 240 marks, and that the price must rise, as the stock of this timber in N. America was already exhausted. The tree, as stated by Dr. Heinrich Mayr in his *Die Wäldungen Nord America*; p. 178, that "the tree belongs to the quickest growing valuable hardwoods of the north. It grows readily on dry soils, even when these are too poor for agricultural purposes. The beautiful red-coloured wood is suitable for all kinds of furniture. Big trees are already rare to find."

Other species of timber trees valuable for general purposes are mentioned, viz., Robinia pseudo-acacia, Pinus Strobus, Juglans cinerea, Platanus occidentalis, Gleditschia triacanthos, and Liriodendron tulipiferum. We think land owners should give much more consideration to the planting of the best timber trees of N. America than to Beech, Oak, Lime, Spruce Fir, Scots Fir, and Larch, more especially in view of the rapid depletion of the natural forests of that country.

IL CRISANTEMO, STORIA, CLASSIFICAZIONE, DESCRIZIONE E COLTURA. By Dario Formilli. (Published by the Unione Tipografico-Editrice, 28, Corso Raffaello, Turin.)

SIGNOR DARIO FORMILLI is the first Italian to publish a book on the popular autumn flower. Unlike many of the recent additions to the literature of the Chrysanthemum, *Il Crisantemo* is not a mere pamphlet, but a substantial volume of nearly 300 pages. It is bound in paper covers, but in a peculiarly artistic style and design. One feature that distinguishes this volume from any other that we know, unless, perhaps, we except Mr. Sautel's *Chrysanthemum Album*, is the fact that the author has given us quite a number of chromo-lithographed portraits of some of the recent novelties. Of these, the frontispiece is Calvat's variety, dedicated to President Scalarandis, one of the founders and original President of the Italian National Chrysanthemum Society. Others, reduced, of course, in size, are Mme. Herrewege, Mme. Chevrant, Mme. Waldeck-Rousseau, Colonel Labouchère, Généralissme Botha, and Mme. Isabelle Joanne. Of illustrations in black-and-white there is a goodly number, all of which are intended to be explanatory of the text.

Being written obviously for Italian growers, it is scarcely needful for us to review the particulars concerning the cultural details laid down by the author.

The book is divided into nine principal parts. Part I. is devoted to history, description, classification, and bibliography, the last-named subject being the most complete list of Chrysanthemum literature yet published, and in which the author acknowledges his indebtedness to our correspondent, Mr. Harman Payne; Part II., general cultivation; Part III., insects and diseases; Part IV., deals with special forms of cultivation, specimens, standards, show blooms, &c.; Part V., grafting, sports, &c.; Part VI., is a sketch of the Chrysanthemum in Europe and in Australia; Part VII. contains a series of the best varieties for various kinds of cultivation, and this is followed by Part VIII., a descriptive and alphabetical list, with raisers' names, and dates of the best varieties in commerce.

The concluding Part IX. is unusual, but no doubt necessary to the Italian grower, for it contains a list of the French and English technical terms used by those growers, with a translation of the same into Italian. Thus, break, crown-bud, rust, sport, taking the bud, top-dressing, and many others are rendered into equivalent Italian.

The Chrysanthemum has made considerable headway in Italy during the past few years, and the appearance of Signor Formilli's book is therefore opportune. Altogether it is a comprehensive and interesting work. The price is 5 lire, or in English money about 4 shillings.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The sixty-fourth annual exhibition of this Society is to be held at Park Royal, London (near Acton), from June 23 to 27 next. In addition to live stock, there will be shows of farm implements at rest and in motion, and of farm produce—cider, perry, corn, Hops, &c. It is expected that the exhibition will be on a very large scale, and His Majesty the KING has promised to visit it.

INTERNATIONAL POTATO.

THE recent belated honouring of Mr. Robert Fenn for his lifelong labours in connection with the Potato, work even now continued in association with certain efforts at cross-fertilisation of species, helps to recall the fact that one of his seedling varieties, raised so many years since at Woodstock, and was for a long time famous as an exhibition variety, and so aptly named International, is, in spite of its comparative decadence under that name, yet still in other directions one of the most popular and widely consumed of Potatos in commerce. What is now found universally in tubs and boxes in all markets and shops, and retailed in enormous quantities at about 2*d.* per lb. as Jersey Plume, is but our old friend the once-favoured International. Whatever may have been its merits as a cropper and producer of fine, handsome, kidney tubers, and in those respects as a mid-season variety it has never been excelled, yet its table qualities were always so indifferent that very few growers had a good word to say for them. Yet now it is consumed at this time of the year apparently by thousands of tons; it is indeed almost the only really new one of the imported early Potatos put, during the summer, on the British market. Mr. Fenn, because of the lack of table quality in International, objected to it being put into commerce. I did succeed in inducing him to consent, and my brother, Mr. R. Dean, sent it out. None of us little thought then that it would now be grown in the Channel Islands, and in France, and be sent over here annually in such enormous quantities for consumption. International was own brother to Woodstock Kidney, a variety of great table excellence, handsome in tuber, but not a robust cropper. But this variety was singularly productive of pollen, and would, on a fair breadth, set seed-apples by the bushel. For that reason Woodstock Kidney was very largely used as a pollen parent, indeed it has in that way a big progeny of fine serviceable Potatos. Hence those twin varieties have in their respective ways done in the Potato world wonderfully useful service. *A. Dean.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA MOSSIÆ WAGENERI.

IN their large importations of Cattleya Mossiæ, Messrs. Stanley, Ashton & Co., of Southgate, are remarkably ortunate in flowering fine, pure white varieties, two excellent examples of which have each three very fine clear white flowers with dark yellow markings on the lip. These plants are now in flower at their establishment. Both are the equals to the handsome C. M. Wageneri Edward VII., which Messrs. Stanley, Ashton & Co. staged at the last Temple Show, and have rather larger flowers than their C. M. W. Hassell's variety, for which they received an Award of Merit at the Temple Show in 1900. At Southgate there has been a splendid show of the coloured varieties of the best type of Cattleya Mossiæ, most of which have now, however, passed out of bloom. The white varieties this season, as previously, seem to be later flowering.

ODONTOGLOSSUM CRISPUM SALE.

On Thursday, June 11, Messrs. Protheroe & Morris, of the Central Auction Rooms, 67 and 68, Cheapside, had a most successful unreserved sale of newly-imported plants of Odontoglossum crispum, which was remarkable in many ways, and well worthy of note. The collection was made in the mountains of Colombia, it is said, by men who had no knowledge of Orchids, except that acquired by their residence in the country. The plants were only forty-five days on the journey from their native habitat to London, and in little more than a week after their arrival

Messrs. Protheroe & Morris had advertised the sale in the *Gardeners' Chronicle*, lotted and catalogued the plants, and advised intending purchasers. The quality of the plants was excellent, although there was a large proportion of small pieces which had to be put into lots of twenty and fifty. The 2,910 lots realised just over £1,600, the prices obtained being good throughout according to quality.

Dendrobium Bensoniæ.

Probably in consequence of a good recent importation this beautiful Dendrobium is flowering exceptionally well in many Orchid collections at the present time. In the gardens of Walter Cobb, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes), for several weeks past a very fine show of it could be seen. The stout-bulbed specimens bear dense heads of white flowers with an orange coloured disc on the lip, at the base of which there are two maroon spots. In the growth and in the flowers there is considerable variation, some having much longer and thinner pseudo-bulbs than others, and the yellow on the lip is, in some cases, much lighter than in others. The plants are generally leafless, although many stout young growths are coming up. These will be matured in a high moist heat, and then rested dry and cool.

MILTON COURT, SURREY.

[See Supplementary Illustration.]

It is one of the greatest pleasures in life to visit any garden worthy of the name, but there is something unusually refreshing in one that is a reflection of the tastes and preferences of an enthusiastic and appreciative proprietor.

In gardens generally there is considerable similarity; many are as nearly alike to others as possible, allowing for differences in local conditions. Owing to a lack of knowledge and of whole-hearted interest, proprietors too frequently speak of "the" garden, and rarely of "my" garden, the latter term implying the possession of characteristics that distinguish it from every other person's garden. Such an one, however, is not only most pleasing to those whose creation it is, and who habitually seek its pleasures, but it interests the visitor, although the preferences manifested may not be identical with his own, and his favourite flower is afforded only a secondary place in the scheme of adornment.

The garden of Mr. and Mrs. L. M. Rate, at Milton Court, which is situate between the pretty town of Dorking and the village of Westcott, is a characteristic garden, and bears in its beds, borders, pergolas, arches, hedges, and water, evidence of the care, selection, tastes, and preferences exercised by its owners during a period of more than forty years.

Roses Everywhere.

A cursory inspection whilst walking around the charming old residence, the greater portion of which was built in 1575, suffices to disclose the predominating admiration entertained for the Rose. The Queen of flowers has certainly been chosen to reign as undisputed Queen of this pretty garden. It is natural, therefore, that each of the three photographs which are reproduced in this issue illustrates the effect of Roses in one form or other.

Fig. 153.—Festoons of Roses at Milton Court.
(see also supplement.)

Let the reader examine the illustrations on the Supplement. One of them shows the view looking towards the north-east front of the dwelling-house, and has for its principal feature a beautiful arch over the pathway leading to the herbaceous borders. The variety is Félicité-Perpétue, and it may be imagined what a glorious effect this produces when in full bloom at the end of June. The illustration in fig. 153 shows a series of Rose garlands formed of chains suspended from pillar to pillar, contiguous with the arch, and extending over the tennis-court, so that in walking from the house to the pile-like grass of the court, the visitor passes beneath one of them. What a wealth of

flower, and what a satisfying effect they produce! The varieties include many of the Rambler section, and others, that grow vigorously; such delightful garden Roses, for instance, as the one mentioned already, and Crimson Rambler, Longworth Rambler, Coupe d'Hébé, Dorothy Perkins (a Wichuriana hybrid), Bardon Job, a richly-coloured large-flowered single Rose, Psyche (Polyantha), figured in a Supplement to the *Gardeners' Chronicle*, May 7, 1898, one of Messrs. W. Paul & Son's seedling varieties, of which two fine plants are now commencing to bloom for the first time in this position, and others. One of Lord Penzance's lovely hybrid Sweet Briars, that bears his lordship's name, though not shown in the pictures, is already a beautiful object, bearing many of its single flowers of brightest rose and orange colours in addition to fragrant foliage. In the other illustration on the Supplement is a nearer view of the house over the old-fashioned sunken garden, having stone palisades around it. The geometrical flower-garden, with its Begonias and other bedding plants, was removed several years ago, and in its place are four large beds, one in each corner, which are planted with Tea and hybrid Tea Roses, over a carpet of Violas. The Irish Ivy that grew over the palisades was taken away, and Roses of the China Blush type were substituted. The variety Homer, a very old one, having pink flowers, grows around the great vases, and in every position that could be utilised, Roses of some description are cultivated. On one side of the sunken garden is a hedge of Thuya, about 10 feet high, planted by Mr. Rate many years ago, and which shelters the whole of the front garden from the east wind. Here are Roses again. Vigorous varieties are planted near to its foot, and are trained over this huge hedge, so that in summer instead of the sombre line of the Thuya, it presents a show of Crimson Rambler, Alister Stella Gray, W. A. Richardson, Reine Marie Henriette, and other Roses, as well as Honeysuckles, &c.

On the opposite side, where the ground rises rather steeply, a grass slope 6 or 7 ft. deep becomes burned in dry, hot seasons, and this has suggested yet another use for the same type of Roses. They have been planted along the base and top of this, and wires having been stretched along the grass, the shoots of the Roses will be bent down over to screen the grass, and incidentally afford another Rose effect. But these do not nearly exhaust the Roses at Milton. They may be seen in every part of the garden, and some of the most effective scramble up red brick walls, that were doubtless built for fruit trees, and reaching the top yield a magnificent display of flowers, in which the varieties Lamarck and Rêve d'Or, are particularly effective. The Greengage trees become fewer, as one after another is removed to make room for yet another Rose. A rare instance of the beautiful vanquishing utilitarianism!

The reader may have already discerned that the particular use made of Roses at Milton is for the purpose of producing effect in the garden. They are not regarded as the means of producing individual blooms of the highest perfection, as they would be by an exhibitor, but as an exhibitor himself would describe it, they exist for the garden, rather than the garden for the Roses. All efforts are directed towards securing gardenesque effects, nothing is cultivated merely as a specimen, but everything is so grouped that it increases the beauty of the general scene.

Pergolas.

Arches and pergolas are quite a feature. Few of the walks in the near part of the garden are not covered in some form. A very old Pear-arch, extending over the path for a considerable distance, is probably more picturesque than fruitful. At right angles with this there is a pergola, supporting such interesting climbing plants and trailers as Akebia quinata, Aristolochia Sipho, La France Rose, Jasminum nudiflorum, Dutch Honeysuckle, and Grape-Vines. Another pergola which is near to the lake is built of Larch, and supports Vines exclusively, of which a number of varieties is represented.

In recent years there have been planted many of the best flowering and ornamental shrubs, in beds and borders. These include Genista Andreana, Garrya elliptica, Azara microphylla, Spiræa media, S. Bumalda, Cornus macrophylla, so ornamental in autumn; Cerasus pseudo-cerasus "J. H. Veitch," Philadelphus Lemoinei, Viburnum tomentosum, &c. A grateful hedge of Sweet Briar grows by the side of the stream, and large bushes of Choisya ternata succeed with the protection afforded by a wall. The best Coniferous trees are Pseudotsuga Douglasii, A. Pinsapo, A. concolor, and Cedrus Deodara. There are several magnificent trees of the red-flowered Thorn, which a week ago were ablaze with colour.

Border Flowers and Water Garden.

Hardy herbaceous flowering plants are also favourites at Milton. Seldom may one see such robust and excellent Delphiniums and Foxgloves; but of these latter, only those having pure white flowers find a place. Preference will not permit the presence of pink forms, nor even those beautiful spotted varieties, one of which was ruthlessly dragged out and excommunicated before our eyes. There are plenty of Sweet Peas, the Lupins were in full bloom, as were also the Thalictrums and Dictamnus Fraxinella alba, whilst a good general collection of species will flower later. Tropæolum speciosum, growing up the southern face of a Yew-hedge, but in a shaded position, appeared quite happy.

Great bushes of Rhododendrons, on a bank overlooking the water, were a mass of colour; and in the water itself a number of new Nymphæas are growing well; a plant of Richardia africana, put in last autumn, has wintered well, and is in bloom. On the banks are beds of hardy Rhododendrons (Azaleas), and in a part where the water assumes the form of a narrow stream, Primula japonica was blooming in hundreds right into the water's edge, and the white variety also. Bamboos, Rushes, Saxifraga peltata, Myosotis palustris, Iris Kæmpferi, Lobelia cardinalis, and other suitable plants, have together an effect which is very charming; and beyond, a soft, moss-covered path under an avenue of Lime-trees, leads to a long walk amidst shrubberies, that is a grateful retreat from summer's sun.

Mr. and Mrs. Rate have a beautiful house, each of the rooms bearing evidences of good and simple tastes. There are plants and flowers in every suitable position—not stiff, formal arrangements of flowers in vases, but huge sprays of Rhododendron and other flowers, so arranged that they appear to be growing; and in a little boudoir leading from the drawing-room there are well-executed paintings of flowers on panels that completely cover the walls. The artist drew his materials from the garden outside.

In all their work and schemes in the garden, Mr. and Mrs. Rate have a helpful colleague in their gardener, Mr. Jno. H. Geall, who, being a good cultivator, manages to keep the collection of plants in vigorous growth.

Egyptian Decoration for a Kewite.—The King has given permission to Mr. Walter Draper, Superintendent of the Delta Barrage Gardens, to accept and wear the Insignia of the Fourth Class of the Imperial Ottoman Order of the Medjidieh, conferred on him by the Khedive of Egypt for services rendered to the Egyptian Government. Mr. Draper left Kew in 1892.

JOTTINGS FROM LUTON HOO.

I visited Luton Hoo, Luton, in March last, and although early spring is not the best season for visiting a country garden, I was enabled to discover many interesting features in this famous garden and demesne. The last proprietor of Luton Hoo Park was Mrs. Leigh, who married Count de Falbe, Danish Minister at the Court of St. James. The gardens were well kept up for many years by a succession of good gardeners, of whom we may mention Budd, Butters, and Bailey, the last-named now established as a nurseryman at Flitwick, close by.

The pleasure-grounds and lawn, which are very extensive, were in good keeping. There are many memorial trees planted by a number of noted persons, who have at one time or another planted trees for the owner of Luton Hoo, including the Queen and the Princess of Wales. The large beds in front of the mansion were filled with spring flowering-plants and bulbs, and in the summer these make way for 60,000 bedding-plants of all kinds. In addition to these, there are large beds filled with Azaleas, Pæonies, Roses, &c., in various parts of the lawn in the vicinity of the mansion. Some fine specimens of Araucaria imbricata are found hereabouts, which annually receive a top-dressing of loam. Some very fine clumps of common and Portugal Laurels, and symmetrical Cupressus, also of various species, very fine Piceas Smithiana, Nordmanniana, orientalis, and Pseudo-tsuga Douglasii. In a dell (which I was told was once a deposit for rubbish) a dogs' burial-place has been made, containing a lot of tombstones erected to a number of favourite dogs belonging to the family. The surroundings consist of rockwork, big tree-roots, &c., on which climbers have been planted, making a very pretty scene. A mossy walk winds through the dell, shaded with fine trees. From the front of the house nice views are obtained, including a lake. The park, which is extensive, has some fine old Oak and Beech scattered about.

The kitchen garden and glasshouses are about five minutes' walk from the mansion. The walled-in gardens are extensive, and on the walls are capital specimens of fruit-trees. The Peach-wall is particularly fine, and extends to about 200 yards. The trees are in perfect condition, and were at that date (March) coming into flower. I should advise any gardener prejudiced against Peach-growing outside to inspect the trees on this wall. On the north side of the wall is a fine collection of Plums, Pears, and Apples, and these trees bear abundant crops of fruit.

In the kitchen garden I remarked some fine beds of Broccoli, Veitch's Model being the variety chiefly grown; Carter's Early Heartwell Cabbage appeared vigorous, and would soon be fit for consumption. Large quantities of Strawberries are grown, and Royal Sovereign, of which about 3,000 plants are potted for being forced, is the favourite variety.

In the glasshouses, which are numerous, a fine batch of Tomato, Ham Green Favourite being the variety mostly grown for winter consumption; and overhead, Strawberries were ripening on shelves, and in company of a fine lot of plants of Lilium longiflorum Harrisii. Another house contained Tomatos and Lilies, and one was filled with Eucharis grandiflora and Anthuriums, with Stephanotis floribunda overhead. A stove contained Codiæums and Dracænas, which were remarkably well coloured; and on a shelf a fine lot of plants of Saxifraga sarmentosa, with very beautifully coloured leaves. Richardias had a house to themselves, and were furnished with splendid spathes. Mr. Maycock, the gardener, plants the Richardias out-of-doors in the summer. Strawberries in pots were found in many of the houses, and they had a thrifty, satisfactory look.

A vinery just at that time started contained a number of fine pot Roses. There is a regular Rose-house or Rose-garden under glass, a useful

adjunct to any establishment. The Roses, Teas, H.P.'s, Bourbons, H.T.'s, &c., are grown in beds and borders, and climbing Roses clothe the pillars and rafters. The Black Hamburgh Grapes were being thinned. Several span-roofed houses are devoted to Malmaison and other Carnations, which gave promise of a bounteous crop of flowers. Orchids in variety occupy two houses, Cypripediums predominating. The Cucumbers favoured by Mr. Maycock are Rochford's Hero of Lockinge. There is an Orange-house, and one for economic plants. On every hand were signs of skilful cultivation and good management. *W. A. Cook.*

FIG. 154.—GRAMMATOPHYLLUM SPECIOSUM AT KEW.

GIANT ORCHID AT KEW.

SOME years since we figured a specimen of Grammatophyllum speciosum, as introduced from Malaya by Messrs. Sander & Co. (see *Gardeners' Chronicle*, vol. vii., 1890, p. 297; see also p. 8 of Index of vol. xiii. of *Gardeners' Chronicle*, 1893. This gigantic specimen was presented by that firm to the Royal Gardens, Kew, where it forms one of the most striking features in that home of marvels and beauties. It is growing in one corner of the tank in which the Victoria excites the wonder of the visitors, and is in its way equally remarkable.

Last year the giant flowered, when the occasion was seized to make it the centre of a group containing fine plants of Epidendrum

ciliare, Dendrobium undulatum, Ansellia africana, and Oncidium altissimum. A photograph was taken by Mr. E. J. Wallis, for a copy of which we are indebted to the Director of the Royal Gardens. The foliage in the illustration suggests at a superficial glance some pinnate-leaved Palm, but the elegant, much-branched inflorescence, with its profusion of flowers, proclaims its lineage. The history of this noble Orchid is well known, and has more than once been given in these columns, so that now we need only reproduce the photographic illustration (fig. 154), which will surely interest plant-lovers in general and Orchid growers in particular. In order to see more clearly the wealth of flowers, we suggest that the illustration be viewed through a reading-glass.

COLONIAL NOTES.

CEYLON BOTANIC GARDENS.

We wish to call attention to the last Administration Report of the Royal Botanic Gardens, Ceylon, drawn up by Mr. J. B. Carruthers, Acting Director. In addition to the ordinary notes concerning exports, we here have information arranged in a series of charts, by which the conditions may be seen at a glance; and the publication also contains attractive illustrations of prominent features in the Gardens.

Considerable progress was made during the year 1902. "The most important step forward has been the addition to the Department of an Agricultural Experiment Station. Gangaroowa estate, which occupies the other side of the Mahaweli-ganga river, which runs round the Peradeniya Gardens, has been purchased by the Government for this purpose. It consists of some 500 acres of land, comprising 300 acres jungle on the slopes of a hill 500 ft. high, and 200 of flat alluvial land. The annual rainfall, like that recorded in the gardens, averages 90 inches. The land has been cultivated for some eighty years, and was the earliest estate to be opened in Coffee, having been opened by Sir Edward Barnes, K.C.B., Governor of Ceylon, early in 1825.

The need for such an experiment station has long been felt, and the site chosen gives every promise of this, the first British Tropical Agricultural Experiment Station on any scale, being of the greatest value to Ceylon in the first instance, and in some measure to the whole Empire. The fact that the station adjoins the Royal Botanic Gardens will enable the Director and his colleagues effectually to superintend the various experiments carried on without loss of time; while the climate and elevation of the place will make the results of general value, as it represents a very large proportion of cultivated land in the island.

The object of the station is to add to our knowledge of economic products by using scientific methods in experiment and observation. Such questions as the best methods of cultivation of plants already being grown for profit, with a view to improving these; the prevention and cure of the diseases associated with cultivated plants; the introduction of new and untried plants of possible economic value; the improvement, by selection and other scientific methods, of economic plants; the determination of the value of various manures for different crops; the value of shade for each product; and the best trees and number of them to be used. These and many other points of vital importance to agriculture in Ceylon, and the tropics generally, will be experimented on, and the knowledge gained published."

THE MALAY STATES.

The *Agricultural Bulletin* for February, edited by Mr. H. N. Ridley, is mainly devoted to questions connected with the rubber industry. Mr. Bonnechaux, an expert, visited the Botanic Gardens at Singapore, and was surprised to see the rubber plantation doing so well, but suggested improvements in the method of tapping the trees. Dr. Weber's notes on a journey to the rubber-plantations on the isthmus of Colombia are interesting. Adverting to the alleged unhealthiness of Colon, he says it has been greatly exaggerated, and that he would prefer to live in Colon rather than in the slum districts of London, Manchester, or Salford. The necessity for accurate discrimination of the species of Castilloa is pointed out, inasmuch as while some trees abound in rubber, others very similar in appearance contain little or none.

Para rubber (Hevea brasiliensis), it is here shown can be produced in the Straits Settlements, from ten-year-old trees of such quality as to be worth 8*d.* per pound more than the best Brazilian kind. The trees which furnished this rubber are the descendants of those transmitted from Kew to the Straits Settlements in 1877, so that the Settlements are in possession through the agency of Kew of a new and important cultural industry. The maximum temperature for February in various districts is given as 90° and over; at Pahang the maximum was 96°. The conditions of life must be somewhat trying in such a climate.

MARKET GARDENING.

SIX GOOD VARIETIES OF ROSES FOR GROWING IN POTS.

The best varieties to bloom in spring are Mrs. John Laing, General Jacqueminot, Victor Verdier, Baroness Rothschild, Duke of Connaught, and Captain Crawford. One of the secrets of good Rose culture in pots is to have the Rose-houses entirely devoted to those plants. The particulars in regard to the culture of Roses that I got from a trade establishment are, to use 48 and 40-pots, and these are stood on inverted pots; also to afford water before noon in bright weather twice. After the dinner-hour, all the plants are hosed, light or heavy, according to the state of dryness of the roots. No disbudding is done, the aim being to have the plants as natural-looking as possible. Light and ventilation are essential points, and a very little heat is employed. *S. C.*

IRIS PUMILA CŒRULEA.

This dwarf species, about 6 inches high, is a useful rock plant. It is sometimes called a Crimean variety, but is, I believe, of Austrian origin. At the Finchley nursery of Messrs. Wm. Cutbush & Sons, the plant is being grown in large quantities. *Stephen. Castle.*

The Week's Work.

THE FLOWER GARDEN.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Clipping Shrubs.—Where topiary work of any description is carried out, either in the form of individual specimens cut and trained into fantastic shapes, or as hedges, much time has to be spent in clipping, and the work spread over most of the growing season. In the case of clipped Box, and to some extent of most evergreen plants employed for this purpose, any really hard clipping that is needed should be done before the end of June, and later clippings should only be superficial, for new growth resulting from later operations is apt to get killed back or badly rusted during the winter; of course, I allude now to those parts of the country in which the winters are usually rather severe. Clipped evergreens are now out of fashion in most gardens, but in regard to some kinds of plants, such, for instance, as the Golden Yew, the effect in regard to colour is much enhanced by the simultaneous production of new growth on plants having a well-defined outline.

Young Trees.—Young specimen trees which are supported by stakes should now be examined, to see if the ties, guards, or cushions require attention, the stems increasing in girth so fast at this season that great injury is often caused by the gardener neglecting to loosen ties, &c., in good time. The most simple and best form of staying young trees is to attach three guy-cords to a bandage of felt, put at a convenient height round the stem, and to fasten them to stout pegs driven into the ground. These guy-cords should not be strained quite tightly, it being advisable to allow the upper portion of the stem to have a little play, as then the wind from whichever quarter it blows, will tighten the guy-cords accordingly, and afford the necessary support. The bad effects of allowing grass to grow right up to the stems of young trees is not taken sufficient note of, for one often sees young specimens of deciduous and evergreen trees and shrubs planted on lawns, and the turf brought up quite close to the same. To do this is undoubtedly a check to growth, and is wrong till the trees are strongly rooted and established. The matter has been well tested, and the trees with an uncovered surface of soil around them have been found to make nearly double the amount of growth made by others which were turfed close up to the stem.

Flower Borders. — Cut back almost to the ground level the stems of Pyrethrums and Delphiniums which have flowered, and thus induce a display of flowers in the autumn. Stake and tie all herbaceous plants which are growing fast, or a high wind may injure them. Peg down creeping plants requiring this sort of attention; the pegging not only holds them in position, but some species of plants when pegged make surface-roots which assist growth and prolong the flowering season.

Seeds.—Seeds of Brompton Stocks, Aquilegias, and Gaillardias should now be sown. Of the former, the plants should be grown in a rather exposed position until finally planted out, as the plants winter without much loss if the growth is firm. Even when wintered in pots under glass, the same conditions should obtain in the early stages.

THE ORCHID HOUSES.

By H. Alexander, Orchid Cultivator to Capt. G. L. Holford, Westonbirt, Tetbury

Dendrobiums.—Plants of D. densiflorum, D. thyrsiflorum, D. fimbriatum, D. Dalhousieanum, D. moschatum, D. Farmeri, D. chrysotoxum, D. suavissimum, and D. Brymerianum may now require to be repotted and surfaced. The growth of all these species is well advanced, and new roots are being emitted, which will soon enter the new material afforded. The latter should consist of turfy peat two-thirds, rough Oak-leaves one-third, together with a small quantity of chopped sphagnum and a liberal sprinkling of coarse silver-sand. Let the pots, pans, or baskets be clean and well drained, the taller species being placed in pots and the dwarf ones in pans. Guard against over-large receptacles for these plants, more especially if fern rhizomes are employed for drainage, as these retain water in considerable quantity. When repotting, make the compost moderately firm, keep the base of the plant on a level with the rim of the receptacle, apply water very sparingly till the new roots push freely into the compost, at which stage overhead syringing is beneficial, and keeps red-spider in check. The species named, like most Dendrobiums, should be afforded much heat and much moisture in the air, and abundance of sunlight when growing; and if an East-Indian house does not exist, place them in the plant-stove.

Dendrobium Bensoniæ.—This species, now passing out of flower, is a very beautiful but difficult Orchid. It makes a fine display the first year after it is received from its natural habitat, but unless the season be an exceptionally favourable one, and there is abundant sunshine, the growths seldom get matured sufficiently to flower again with freedom. The plant should be placed in a very small pan, afforded water sparingly at all times, a light position being found for it near the roof in the warmest house, and here it should remain during the winter months after its growth is completed.

D. infundibulum.—This species and its variety, Jamesianum, now growing and making roots, should be repotted or top-dressed, as the case may require. This Dendrobe requires similar treatment to that of D. formosum, and to be placed in the cool intermediate-house instead of the warmest division.

Miltonia vexillaria, having ceased to flower, may be afforded for some few weeks much less water at the root than hitherto. The non-observance of this rule will cause black spots on the foliage very soon. It is prudent to remove the plants to the cool intermediate-house for the summer months, and place them where the ventilation is good. The flower-spikes when removed from a plant should be cut as low down as possible, in order to prevent decay at the base of the last-made pseudo-bulbs setting in.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Peach and Nectarine-trees.—These trees, now growing freely, should not have many shoots needing removal if disbudding has been properly carried out. Two to three shoots are usually as many as may be left on each length of fruiting branch, one at the base, and one for extension if required. Some gardeners prefer to use twigs of Birch, Privet, and stems of bracken when dried, thrust under the older branches, so as to keep the younger shoots in place. My method is to secure the shoots by ties of bast to the older wood, and to use wall nails and ties. Expose the fruits to the sun and air as much as possible. In the case of vigorous young trees, care must be taken that the leading shoots do not take an undue lead at the expense of other parts of the tree, and if this appears likely to occur the point of the shoot should be pinched off, and a weak shoot below it allowed to take the lead. Employ the garden-engine on the trees towards 4 P.M. on fine days, which will check the increase of red-spider. So far this season but very little water has been required at the roots, and only such trees as are planted in naturally dry soils should have water afforded liberally during the stoning period.

Disbudding.—Cordon Apples and Pears, owing to the light crops of fruit, are likely to make strong wood this season. In carrying out disbudding, small twiggy growth that obstruct the light should be removed by rubbing them off by hand. The stronger foreright shoots, that will be eventually retained as spurs, should have their points pinched out. Do not remove too many shoots at one time, but rather spread the work over a period of one month, as trees deprived of many of their shoots at any one time receive a severe check.

Work in general.—The recent wet weather has caused weeds to grow apace in the bush-fruit quarters, and hand weeding should be carried out before the plants ripen their seeds, or much work will be occasioned later in the year.

FRUITS UNDER GLASS.

By T. H. C.

The Pine Stove.—The fruits on plants which were started early in the year are developing fast, and those approaching the ripening stage should be afforded a high temperature, with much humidity in the air. Begin to afford air to the plants early in the day if the weather be favourable for so doing, and close the house whilst the sun is still on it, and allow the temperature to run up to between 90° and higher. The night temperature should range from 68° to 70°. Lightly syringe the plants at closing time, and frequently damp the paths, &c., during the day. Continue to afford manures with each application of water until the fruits begin to ripen, when clear water only should be applied, diminishing the supply to a plant as the fruit ripens, stopping the syringing of such plants, and affording less humidity and a greater amount of air.

Succession Pines.—Plants for autumn and early winter fruiting that have been afforded less heat in the air and moisture at the root in preparation for starting them, should receive one copious application of tepid water, after filling up with soil the space caused by the shrinking of the ball. Afford air as usual, lightly syringe the foliage in the afternoon on fine days, and at other times maintain a moist air in the house. A day temperature of 80° to 85°, and by night of 70°, and a bottom-heat of 85°, will be suitable. If the heat of the bed has declined, let about half of the materials be replaced with fresh warm tan or tree leaves, and mix these well together with the old. In replunging the plants take great care of the leaves. Withhold water from smooth Cayennes which have their pots well filled with roots, which are required to ripen their fruits in the winter months; at the same time apply less heat and thus prepare the plants for being started a month hence. Place in their fruiting-pots the most forward of the rooted suckers, choosing 10-inch pots for Queens and 11-inch ones for smooth Cayennes and other strong growers. Employ a compost consisting of the best, light, turfy-loam, pulled to pieces roughly, and to each wheel-barrowful add a 7-inch potful of bone-meal and rather more of charcoal of Hazel-nut size. If the loam used be heavy, add enough mortar-rubble as will make it pervious to water. Pot firmly, using a rammer, in clean, well-drained pots, placing a good sprinkling of soot on the moss or rough soil lying above the crocks. Before repotting, see that the plants are moist at the root, as then beyond a daily syringing overhead no more water will be necessary for some time afterwards. If necessary, thoroughly cleanse the house and renew the plunging material. If tanners' bark be the material used for affording bottom-heat, throw out half of the old, and replace it with fresh bark. Much care is necessary after this operation to prevent the heat of the materials injuring the roots of the Pines. Afford a day temperature of 80° to 85°, with ample ventilation and slight shade during bright weather; a night temperature of 70°, and a bottom heat of 85°.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Celery.—Continue to set out the plants in batches as they become fit, affording the nurse-beds water the day before planting, so as to give as small a check to growth as may be; and afterwards keep the plants well supplied with water at the root. The earlier planted Celery should receive frequent dressings of soot to deter the Celery-miner-fly depositing her eggs on the leaves, and to drive away slugs, doing this in the early morning hours, when the leaves are moist with dew.

French Beans.—A sowing may again be made of Canadian Wonder and Magnum Bonum on rich soil. Sow in drills drawn at 2½ feet apart, and allow a space of 9 inches between the plants. When the plants appear above the ground, apply fresh soot and quicklime in equal proportions when the leaves are wet with dew.

Runner Beans.—If the demand is large, another sowing may be made of any desired variety. This should be the last sowing for the season. The seeds of Runner Beans are often sown or planted too thickly, and too little space afforded between the rows, with the effect that crops are poor. It is a better plan to sow in rows wide apart, and intercrop with low-growing vegetables. The plants of the earlier sowings may now receive their stakes, and if need be, thinned. When the staking is finished, mulch the ground alongside the rows heavily with half-decayed manure, and afford plenty of water in the absence of copious rains.

Endive.—The chief sowing may now be made, and a few of the plants of this sowing transplanted, which, with a little nursing along, these will be about one week later than those of the undisturbed plants. Thin the early sowings as soon as the plants are large enough to be handled conveniently, the curled-leaved varieties to 1 foot, and the Batavian to 1½ feet apart. The hoe should be often used amongst Endives to kill weeds and aërate the soil.

Asparagus.—Cutting should now cease, and a light occasional dressing of some sort of artificial manure afforded. [A solution of 1 oz. sulphate of ammonia, 2 oz. of superphosphate of lime, and 1 oz. of kainit, in 1 gallon of water, form a good application of manure, especially in dry weather. ED.] The beds should be kept free from weeds, and light Pea-sticks used freely all over the beds, so as to afford support to the tops; and failing these, stout stakes may be driven into the ground at suitable distances apart, and thick tarred twine stretched from stake to stake.

General Hints.—Advantage should be taken of showery weather to plant Brussels Sprouts, Kales, Savoys, and Broccolis. Whenever a vegetable crop is consumed, clear all remains off the land, and manure and dig it immediately, allowing no plots to remain fallow. Nothing gives a garden a more untidy appearance, or is so exhausting to the soil, than vegetables standing after their season is past, and when they are perhaps running to seed. Ply the Dutch-hoe constantly among growing crops.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Zonal Pelargoniums. — Plants intended for flowering in the autumn and winter should be placed outdoors on a bed of coal-ashes, and where the sun can reach them the greater part of the day. Let the stronger shoots be pinched at a joint lower than the point where a flower-spike has shown, and let all flowers be removed that may be showing during the next three months. The application of water should receive close attention, examining the plants two or three times a day. As soon as the pots are filled with roots, liquid-manure may be applied frequently. Plants raised from cuttings in the month of April should be repotted as occasion demands, and be placed in a cold frame till established, and then stood out-of-doors. The plants that remain after bedding-out is finished, may be repotted, and grown for winter decoration. Several varieties of Ivy-leaved Pelargoniums are very useful at that season. In potting these plants, make use of good turfy loam, and a small quantity of bone-meal and wood-ashes, a mixture that will grow firmer, and shorter jointed wood than a compost containing much manure. The show and decorative varieties of Pelargoniums stand in need of a slight amount of shade while in bloom, and the foliage should be kept dry. When these sections are past their best, remove them to a sunny position out-of-doors for the purpose of maturing the present season's growth, and after about eight weeks afford the plants their annual pruning.

Greenhouse Climbers.—The plants of Habrothamnus (Cestrum), and Streptosolen Jamesoni should be cut back fairly hard after they have ceased to flower, as it is upon wood made the previous year that the greatest quantity of flowers are obtained; and this, too, very much earlier in the spring than when left unpruned until September, more especially Streptosolen, than which there exists no more showy greenhouse or conservatory plant. It will remain in bloom for quite three months, but it must be trained near to the roof, and the shoots thoroughly ripened. The Heliotrope, too, makes a good rafter plant, and will stand close pruning without being injured thereby. Any plants which have become untidy may have the shoots pruned in closely, and towards the autumn the plants will be covered with flowers. Thin out the growths of Passifloras, Tecomas, Tacsonias, Cobœa scandens, and similar plants, which soon form mere thickets of growth if training, &c., be neglected; and keep the syringe plied well among them, especially on Lapageria rosea.

Begonias.—Autumn-rooted Begonias, if plants of large sizes are required, should be repotted. The plants need shade, and a pit having a north aspect is a very suitable place for them at this season and till nicely in bloom. Plants of B. Gloire de Lorraine should be transferred to 6 or 7-inch pots when well rooted, and placed in a house having a small degree of warmth. Loam, leaf-mould, a small quantity of fine peat and sharp sand, form a suitable compost for the latter, but omitting the peat in the soil used for the tuberous varieties.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	JUNE 23	Royal Agricultural Society's Show in London (5 days). Royal Oxfordshire Horticultural Society's Commemoration Show.
WEDNESDAY,	JUNE 24	Grand Yorkshire Gala and Horticultural Exhibition at York (3 days). Annual Dinner of Gardeners' Royal Benevolent Institution.
THURSDAY,	JUNE 25	Royal Horticultural Society's Show at Holland House, Kensington (2 days). Jersey Rose Show. Brentwood Rose Show.
FRIDAY,	JUNE 26	Royal Botanical Society, Lecture. Isle of Wight Rose Show at Carisbrook.
SATURDAY,	JUNE 27	Windsor Rose Show.

SALES FOR THE WEEK.

FRIDAY, JUNE 26—
Orchids in large variety at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.
(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —62°0.

ACTUAL TEMPERATURES:—
LONDON.—*June* 17 (6 P.M.): Max. 67°; Min. 48°.
June 18 (Noon): Dull.
PROVINCES.—*June* 17 (6 P.M.): Max. 59°, Scilly; Min. 45°, N.E. Scotland.

A Text-Book of Plant Diseases.

We are pleased to announce the publication of a second edition of Mr. GEO. MASSEE'S very useful book, published by DUCKWORTH & Co. Now that plants of one kind are crowded into large houses filled year after year with no other occupants, diseases, especially those caused by fungi, become very prevalent, and spread in the favourable conditions afforded with great rapidity from plant to plant. The "blotch" on Melon and Cucumbers, of which we see so much, has already inflicted damage in the neighbourhood of London alone to the extent of at least twenty thousand pounds during the past two years. Mr. MASSEE acts on the old medical dictum, *Ignota causa nulla est curatio morbi*—we must ascertain the cause before we can cure a disease. The identification of insect or fungus is then necessary; and even more essential is the knowledge of the life-history, that is to say of the manners and customs of the pest. These known, rational remedial measures, and not quack medicines, can be applied with advantage, or at least we can ascertain for certain whether we can or cannot do anything to palliate the injury, and so save waste of time and money. Generally speaking, little or nothing can be done to the already diseased plant. The object to be worked for is to prevent others from being attacked in future.

To the practical cultivator, the importance of hygiene cannot be too much insisted on. In the present day it is positively sinful to cast rotting Potatos and other diseased vegetables on to the manure-heap, or give them to the pigs. Farmers, and gardeners too, in their carelessness often favour the development of fungus spores in the most perfect manner possible. If they wished to propagate the pest they could not take more effectual steps than they too often do. Destruction by fire of diseased plants is the best of all preventatives wherever it is possible, and would be productive of far more efficient protection than the use of Bordeaux Mixture or any other spray.

Abundance of light and air according to circumstances, free ventilation, and a proper proportion between the degree of temperature and the amount of water supplied, these together with absolute cleanliness and avoidance of over-crowding, are the fundamental principles of plant-hygiene. In proportion as the cultivator is able to apply these principles to his practice, will be his freedom from epidemic disease. As to details, which may vary according to the nature of the plant, the habits and manner of growth of its enemies, and the external conditions, Mr. MASSEE'S book may be studied with great advantage.

Incidentally, we notice on p. 89, that the dense tufts of shoots so common on the Birch, and which we were taught were caused by a Phytoptus, are occasioned by a fungus similiar to that which causes the outgrowths on the Silver Fir, known as Witches' Broom.

PHOTOGRAPHING AT THE SHOWS OF THE ROYAL HORTICULTURAL SOCIETY.—We have received the subjoined communication relating to this subject. We may add, that this was not a personal question, nor one concerning any particular journal, but it was one affecting the independence of the Press as a whole. The representatives of the entire Horticultural Press were unanimous in objecting to the manner, if not to the matter, of the minute in question:—

"Royal Horticultural Society.

"DEAR DR. MASTERS,

At the meeting of the Council yesterday, the President mentioned that you had remonstrated with him as to the Minute of Council of April 21, relating to photography at the Society's meetings and shows.

After discussion, I was directed to write to you and explain that the Council had no intention whatever to lay any stress, much less an offensive one, on the word "must" in paragraph iii. of the Minute. All they intended by the whole Minute was to indicate the conditions under which permission to photograph was given.

The Council consider that—if the Society brings the plants, &c., together, and it there and then suits the purposes of anyone to photograph them at the show, and the Society grants permission to do so—it is not too much to ask for a duplicate block (if block be made from the photo so taken) to be presented for use in the Society's publications (with acknowledgment) in return for the facilities thus created and afforded.

The reason for the matter being considered on April 21, was that new applications for permission to photograph came before the Council, and they felt that the number of applicants for photographic facilities was becoming so numerous that well defined rules should now be laid down, instead of the haphazard course pursued hitherto as to granting permissions.

As a personal matter, I regret that in transcribing the Minute of April 21 from notes taken at the Council meeting, I omitted to insert after the word 'undertake,' in par. iii., the words ['if requested'] in brackets, which should have been there. I am, faithfully yours,

By Order of Council. W. WILKS, Sec."

ROYAL BOTANIC SOCIETY.—We are indebted to the courtesy of the Society for the receipt of excellent photographs of their conservatory, and of the Rhododendron exhibition held in the Society's gardens.

"BEAUTIFUL ROSES."—Mr. JOHN WEATHERS, F.R.H.S., late of the Royal Gardens, Kew, has just completed a book entitled *Beautiful Roses*, with coloured illustrations, which will be issued immediately by SIMPKIN, MARSHALL, HAMILTON, KENT & Co., Ltd., and a companion volume. *Beautiful Flowering Trees and Shrubs* will follow shortly.

RAINFALL AT GREENWICH.—According to the report of the Astronomer Royal, the rainfall at Greenwich for the year ending April 30, 1903, was 23·68 inches, or 0·86 inch less than the average of fifty years. The rainfall has been less than the average for each of the eight years from 1895 to 1902 inclusive, the total deficiency for the eight years, ending December 31, 1902, amounting to 28·91 inches. For the four months, January to April, 1903, there has been an excess of 0·95 inch. The deficiency must, in part, have been made up in the last few days!

MARBLE HILL.—In reference to a paragraph in the *Gardeners' Chronicle*, page 362, sent by a correspondent, Sir WILLIAM THISELTON-DYER writes: "It gave me a painful shock to see one of our most cherished Kew traditions summarily knocked on the head in last week's *Gardeners' Chronicle*. May I attempt to restore it to a little vitality? Let me begin by saying that Marble Hill is not at Richmond, but at Twickenham; that it is not on the south side of the river, but on the north; in a word, as they used to say, it is in Middlesex, and not in Surrey. Now, the Duke of ARGYLE took JEANNIE DEANS to her interview with Queen CAROLINE by way of Richmond Hill, where they stopped 'to gaze on the unrivalled landscape.' Thence they proceeded on foot, but nothing is said as to their crossing the river, which they must have done had the interview taken place at Marble Hill. There can, I think, be no doubt that its scene was Richmond Gardens, the grounds of Ormonde House, or as it was afterwards called Richmond Lodge, at which GEORGE II. and his QUEEN resided. Richmond Gardens form the western portion of the present Kew."

THE GARDENERS' RECEPTION AND DINNER.—As many gardeners and others, both in London and in the country, are anxious to learn how the arrangements for this Michaelmas function are progressing, we are enabled to inform them that responses to the circulars recently issued of the most favourable kind keep coming in, and tickets are being issued rapidly. Already upwards of one hundred have been disposed of, and it is hoped that by the date of the dinner (September 29) that number will be quadrupled. To ensure the success of the preliminary reception,

every purchaser of a ticket is supplied with a card on which to inscribe his name and address, which card he is requested to hand in on entering the reception-hall. Instructions as to finding the way readily from the respective railways to Chiswick, and from thence to the Holborn Restaurant, are also sent. The committee have resolved to adhere to their original proposal to admit ladies to the dinner, and hope that some will grace the function with their presence. Not only has the toast-list been arranged, but with the object of securing the best possible representation of the various interests included, nearly the whole of the gentlemen invited to propose or respond have already accepted those invitations. The committee have flown at high game, and have not been disappointed. Messrs. JAS. VEITCH & SONS, Chelsea, have generously offered to decorate the dinner-tables, an offer it is needless to say the committee gratefully accepted. Those who wish for tickets or further information are requested to communicate direct with the secretary, Mr. A. DEAN, 62, Richmond Road, Kingston-on-Thames.

THE INSECT PEST BILL.—Mr. W. HORNE and Mr. T. MAY, Kent; Mr. A. GRANT, Cambridgeshire; and Mr. C. D. WISE, Gloucestershire, have been appointed delegates to represent the National Fruit-growers' Federation, in discussing and moulding in association with Sir JOHN RANKIN, M.P., and the Board of Agriculture, the Insect Pest Bill now before Parliament.

THE NEW HALL.—Mrs. H. Y. THOMPSON has contributed £10 to the Building Fund.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The Annual Festival Dinner will take place on Wednesday, June 24, at the Hôtel Métropole, the Earl of WARWICK presiding.

GARDENERS' ADDRESSES: "THE HORTICULTURAL DIRECTORY."—We are requested to state that the Editor of the *Horticultural Directory*, 12, Mitre Court Chambers, Fleet Street, London, would esteem it a favour on the part of all head gardeners who have changed their addresses since October last if they will send him a notice of their new address. Nurserymen who have changed either their address or title are likewise kindly requested to notify the editor.

MADAME MELBA, on the Saturday before Easter, planted a Golden Poplar in the Melbourne Botanic Garden, as a memorial of her visit. The *Garden Gazette* of Melbourne gives an illustration of the ceremonial.

RHODODENDRON KAMSCHATICUM.—This is a dwarf species like R. chamæcistus, but with deciduous leaves and deeper coloured, almost purple flowers. Mr. REUTHE, who showed it recently at the Royal Horticultural Society from his nursery at Keston, tells us it does best when treated as a bog plant.

JUNE RAINFALL IN SURREY.—At the rain-measuring station at the County Hall, Kingston-on-Thames, the first seven days of the month were quite dry, no rain being measured. The measurements of the following days up to the 15th, showing each previous day's fall, were:—9th, ·56; 10th, ·24; 11th, 1·46; 12th, ·54; 13th, ·00; 14th, ·97; and 15th, ·71, making a total, measured up to 7 30 A.M. on the 15th, of 4·48 inches. As it continued to rain heavily all Monday, having done so more or less for sixty hours, it is quite probable that by sundown that day 5 inches had been materially exceeded. All this rain had fallen in seven days, eight days of the month having been rainless. June of last year, the wettest month of 1902, gave a total rainfall of 3·79 inches. Thus June is establishing a record rainfall, and certainly one for enduring persistency.

MR. HENRY KEMPSHALL, we are informed, will succeed Mr. JOSEPH BENBOW, whose retirement from the charge of Lord ILCHESTER's celebrated garden at Abbotsbury, Dorsetshire, was mentioned on p. 362. Both Mr. BENBOW and Mr. KEMPSHALL are old Kew men. For some years Mr. KEMPSHALL was gardener to the late Sir CHAS. ISHAM, whose unique rockery at Lamport Hall has been illustrated in these pages.

EXHIBITION SCHEDULES:—

THE CARDIFF AND COUNTY HORTICULTURAL SOCIETY'S SHOW, will be held on July 22 and 23, in the Sophia Gardens. The schedule of prizes sent us by the Secretary, Mr. HARRY GILLETT, includes a very large number of classes for most things in season in that month. There is also an art section for the exhibition of photographs, and oil and water colour paintings of horticultural subjects.

THE IPSWICH AND EAST OF ENGLAND HORTICULTURAL SOCIETY, will hold an exhibition on July 15, in the Upper Arboretum. The Secretary is Mr. H. E. ARCHER, 13, Museum Street, Ipswich.

CAMBRIDGESHIRE HORTICULTURAL SOCIETY.—An exhibition will be held on July 14 in the Fellows' Garden, King's College. In addition to the general show, there are valuable prizes offered for cut Roses to be exhibited in open classes. The Chrysanthemum show will be held on November 4 & 5. Schedules may be obtained from the Secretary, Mr. ARTHUR MATTHEW, 20, Trinity Street, Cambridge.

THE BOLTON HORTICULTURAL AND CHRYSANTHEMUM SOCIETY'S Secretary, Mr. HERBERT MAKIN, sends us a schedule of prizes to be offered for exhibitions of Chrysanthemums, fruits and vegetables, on November 20 and 21.

CHIPPENHAM AND DISTRICT HORTICULTURAL SOCIETY.—Wiltshire can boast a few flourishing horticultural societies, and among them the above, which will hold its annual exhibition in Hardenhuish Park on August 12. The Chippenham Society has been established many years, and holds a somewhat extensive exhibition, the schedule of prizes consisting of some 230 classes. It has a deposit fund of nearly £250.

EALING HORTICULTURAL SOCIETY.—The annual exhibition will be held in Walpole Park, in the centre of the town, on Wednesday, July 8. Cut Roses are one of the leading features.

BEAUMONTIA GRANDIFLORA.—The natural order Apocynaceæ is remarkable for the many fine shrubs and climbers it contains, the greater part of them having opposite leaves and a milky sap. The pollen is powdery, the latter character distinguishing them from the Asclepiadaceæ, in which it coheres in masses. Among the more beautiful tropical representatives are Dipladenia, Echites, Odontodenia, Allamanda, Tabernæmontana, and Beaumontia. Probably the finest plant of the order is Beaumontia grandiflora, a native of Eastern Himalaya, extending from Nepal to Sikkim, and ascending to 4,000 feet in Silhet and Chittagong. It was first introduced by Dr. WALLICH in 1818 from the mountain woods of Eastern Bengal, where it is said to climb, by means of its twisting stems, to the top of the loftiest trees. In India it is of extremely rapid growth, a small plant in two years reaching the tops of the highest houses, and is, in consequence, used largely for covering balconies, and for training up Bamboo-poles where a quick effect is required. A fine plant is now in flower in the Mexican wing of the Temperate-house, Kew. It is planted out in a border, trained on wires near the glass, and it flowers annually. The growth is strong and woody, with a dense mass of dark green, opposite, oblong-lanceolate, entire leaves, 6 to 12 in. in length, 3 to 4 in breadth, and of a somewhat leathery texture. The flowers are trumpet-shaped, pure white, with a pale green throat, 4 inches long and 3 inches across, expanding at the mouth, with five roundish lobes, and it has a strong Lily-like scent. The blossoms are borne on short lateral branches, a foot or more in length, in terminal corymbs of from ten to thirty, covering the plant with a mass of bloom from the end of April to the beginning of June. The plant is of easy culture; it is, however, somewhat shy of blooming under ordinary stove treatment, requiring a distinct period of rest, with a lower temperature and partial withholding of the water-supply at the root during the winter months. The dry conditions of the Mexican-house at Kew during winter, suit it admirably. Gradually afford more moisture to start again in spring. Plenty of heat and moisture, with frequent syringing in early summer, will encourage the production of good strong flowering wood, from which the flowers are produced the following spring. The plant is subject to the same insect-pests as other stove climbers, especially so to mealy-bug, and prompt measures are necessary for their destruction, otherwise the handsome foliage is quickly ruined. The soil should consist of two parts loam, one of peat, with the addition of a little sand. Propagation is effected by cuttings, the best being those taken in spring, with a slight heel of old wood; by layers, and by seeds when these are obtainable. *C. P. Raffill.* [See a figure of the fine plant as grown at Panshanger, in the *Gardeners' Chronicle*, May 8, 1886, p. 593. ED.]

MEXICAN LEGUMINOSÆ. — M. LANGLASSE visited Mexico as a collector of plants, especially of those as might be of interest for horticultural or economic purposes. The Leguminosæ, of which 237 specimens were collected, were critically examined by the late MARC MICHELI, and the results of his labours are now before us in the form of a posthumously published memoir wherein the species are enumerated or described, and no fewer than twenty-eight quarto lithographic plates are given. Twenty-six new species and one new genus were described by M. MICHELI. They came especially from the Sierra Madre at a height of about 2,000 mètres, and form, with the Compositæ, the dominant vegetation. Mimoseæ are especially well represented. The memoir will possess a special but melancholy interest for those who knew M. MICHELI, and were in sympathy with him in his horticultural and botanical work.

TREE LUCERNE.—In the *Gardeners' Chronicle* for March 7 of this year, p. 153, is a paragraph upon Medicago arborea, the "Tree Lucerne" of southern Europe. An Australian correspondent has pointed out that in Australia, Cytisus proliferus is largely cultivated as the "Tree Lucerne," and that the use of the same name for two plants is likely to lead to much confusion and disappointment among Australian farmers. The two plants are, of course, widely different. Medicago arborea is a native of Greece and southern Italy, its clusters of yellow flowers are borne upon a common stalk, the calyx and pod are not in the least velvety, and the pod is curled in one complete spiral. Cytisus proliferus is a native of the Canaries, its clusters of white flowers are not borne on a common stalk, the calyx and pod are softly velvety, and the pod is nearly straight. By the above few characters these two plants may be easily distinguished from each other. But with regard to the popular name, it is especially desirable that cultivated plants should have a popular name applicable to only one type of plant, in the sense that Cabbage, Turnip, Beet, Apple, &c., is used, otherwise disappointment to the grower will often occur. Now, the name "Lucerne" properly belongs to the genus Medicago only, and should not be used for Cytisus. Therefore, accepting "Lucerne" as the popular generic name for Medicago, "Tree

Lucerne" is merely an equivalent for the scientific appellation Medicago arborea, and correctly applies to that plant, whilst its application to Cytisus proliferus is incorrect; possibly its use in this connection may be confined to Australia, but this we do not know. However, as Cytisus proliferus is also called the "Tagasaste" in Australia, it would be much better to adopt that as its sole popular name, and discontinue the use of "Tree Lucerne," for the plant in Australia, especially as it is not improbable that the true "Tree Lucerne" (Medicago arborea) may be introduced into cultivation in that land at no very distant date.

PEARLS IN COCOANUTS.—We read, in several local publications, of the pearls that are occasionally found in Cocoanuts, and that are practically of the same formation as those of molluscan origin. Dr. MORRIS (Imperial Commissioner of Agriculture for the West Indies) writes as follows in a letter to Dr. MACDOUGAL:—"More than two hundred years ago RUMPH, an eminent botanist in the East, sent as a present to the Grand Duke of TUSCANY a ring in which a Cocoanut pearl had been set. Further, RUMPH himself described Cocoanut pearls in his great work with considerable minuteness, and gave illustrations of two of them. One was perfectly round, the other was oval or egg-shaped. Travellers in the Philippine Islands have heard of Cocoanut pearls, but have seldom or ever seen them. The natives, it is said, keep 'Cocoanut stones' as charms against disease and evil spirits. The Rajahs, we were told, highly prized them, and wore them as precious stones. It was only a few years ago that real Cocoanut pearls were at last brought to England. One is now at the Museum at the Royal Gardens at Kew, brought by Dr. HICKSON. It is almost egg-shaped, perfectly white, and composed almost entirely of carbonate of lime. It has, in fact, a somewhat similar composition to the pearl of the oyster, and yet there is little doubt it is a purely vegetable product."

SEED FUNGUS OF THE DARNEL.—A recent number of the *Philosophical Transactions of the Royal Society*, includes a paper by Mr. E. M. FREEMAN, M.S. (University of Minnesota), on the seed fungus of Lolium temulentum, the Darnel. It has long been known that the grains of Darnel contain a substance poisonous to man and to certain animals, and this body has been extracted by ether. More recently it has been discovered that the grains of this grass frequently contain a definite fungus mycelium, always situated in the remains of the nucellus, just outside the aleurone layer of the endosperm. Experiments superintended by Mr. FREEMAN, in the Cambridge Botanical Laboratory, point to the conclusion that fungus and host plant constitute an interesting example of symbiosis, and have cleared up many points in the life-history of the fungus, though it is not yet known to what exact species this can be referred. Two other species of Lolium have displayed poisonous qualities, and as the fungus has been found in these specimens also, a relation between the toxic qualities of the plant and the fungus appears to be established. Other investigators (GUÉRIN, HANAUSEK, and NESTLER) have inquired into the matter, and their opinions are, on the whole, unanimous; that is, they agree in finding the hyphæ between the exterior wall of the aleurone layer and the hyaline layer of the grain, although its means of entrance remained undiscovered, or, at least, uncertain. So far from the fungus exerting a deleterious effect upon Darnel, grains of the latter without it often appear incompletely developed; slender in both lateral aspects, less swollen in the centre, and usually devoid of the yellow to dark brown or grey colour of those which contain the fungus; the germination of these infected seeds is excellent. The author concludes that the life-cycle of the fungus of Lolium temulentum is probably unique. From absence of spore-formation, it is evident that this fungus can live for a considerable time without forming spores, passing from plant to embryo through succeeding generations by the hyphæ penetrating the end of the aleurone layer, and hence coming into direct contact with the embryo. Spore forms of the fungus may, however, exist, though they have hitherto escaped observation and cultivation. There is reason to hope that since so much has now been discovered concerning Lolium and its fungus, that the remaining links in the chain of evidence relating to it may shortly be brought to light.

SHELTER FOR PLANTS.—We have received a pamphlet of "Practical Instructions to Procure Shelter for the Animal and Vegetable Kingdom, Increase the Size of Plants, &c., and preserve them from Caterpillars, Snails, &c.," by JAMES DOBBIE. This is the fourth edition of the booklet, and the well-known writer, who has had sixty years' practical experience, gives many useful hints for gardeners. He quotes the advantages of fruit-supporting, detailed by him in the *Gardeners' Chronicle* in 1853, and since then widely acknowledged, and dilates on the great benefits to be derived from shelter.

HOSE-IN-HOSE GLOXINIAS.—Another curious variation occasionally turns up in collections of Gloxinia. From the outer surface of the ordinary corolla spring petal-like out-growths, which are sometimes so perfect that they constitute a second corolla outside the first. Some forty, or it may be fifty years ago, there was a race of these Gloxinias, but we suppose they did not take the public taste, for we only see them now, as it were, accidentally. The condition was described and illustrated many years ago by the late CHARLES MORREN, and is discussed in *Masters' Vegetable Teratology*, pp. 451, 452. For some specimens we are indebted to Messrs. SUTTON & SONS.

"PEOPLE OF THE WHIRLPOOL:" From the Experience Book of a Commuter's Wife. (New York: The MACMILLAN Co.; London: MACMILLAN & Co., Ltd.). We liked the account of the Garden of a Commuter's Wife, and yet, in these days of outdoor books, it is a relief to find that the authoress has changed her subject. The "Whirlpool," it seems, means New York, and is a translation of an Indian name for the city; the "People" are, principally, the writer's twin sons and other relatives and friends. Their affairs are doubtless interesting to themselves; but chronicled, make rather dull reading for strangers. All baby boys are (or should be) delightful in their mother's eyes, and the courtship of personal friends often concern us. The details here chronicled are not exciting to outsiders. Those to whom the American vocabulary is still unfamiliar may start to find two of the most would-be romantic chapters in the book allude to "The Sweating of the Corn," and "The Bug Hunters." Having made these comments, we can praise the Commuter's Wife's clear, crisp style, of which we quote a small specimen:—"Down in a near-by market is a little florist's shop, so small that one might pass twenty times without noticing it; the man, a local authority, who has kept it for years, makes a specialty of the great long-stemmed, single Violets, whose fleeting fragrance no words may express. They call them Californias now, but they are evidently the opulent kin of those sturdy, dark-eyed Russian Violets of my mother's garden." Then follow allusions to persons and sentiments. We are sure that many readers will enjoy the book, which is not a garden-book, nor a strictly true biography, nor a novel, though it has features common to all three.

PUBLICATIONS RECEIVED.—*Nature Notes*, June. This contains a report of the Selborne Society's Annual Meeting and Conversazione.—*Board of Agriculture, Agricultural Statistics*, 1903. Report on the agricultural returns in Great Britain, with summaries and particulars of prices, imports, and exports of agricultural produce.—*The Agricola Club Journal*, of the past students of the South Eastern Agricultural College, Wye, Kent. This is an interesting way of keeping the students in touch with one another and with the College, and of tracing their careers after leaving the Institution.—*Bulletin of the Louisiana Agricultural Experiment Station*. Forage Crops, Grasses, Alfalfa, Clovers, &c., by W. R. Dodson, Assistant-Director and Botanist.—*Ninth Annual Report of the Fruit Experiment Stations of Ontario*. Interesting, as mentioning new fruits and new varieties introduced into Canada; the illustrations are life-like.—*Bulletin of the Jamaica Department of Agriculture*, May. Contents: Sugar-cane Soils of Jamaica, II.; Directions for Planting Cotton; Dead wood in Forest Trees, Grape Vines for Trial in Jamaica, &c.—From the Smithsonian Institution, United States National Museum, *Bulletin No. 52, List of North American Lepidoptera, and Key to the Literature of this Order of Insects*, by Harrison G. Dyar, assisted by C. H. Fernald, the late Rev. George D. Hulst, and August Busch.—*Boletim do Museu Paraense de Historia Natural e Ethnographia* (Museu Goeldi), Para (Brazil).

WEEPING BEECHES AT ASHWICK HALL.

THE accompanying illustration taken from a photograph (fig. 155, p. 397), shows a group of trees which neither pen or photograph can satisfactorily describe, for they must be seen in their various hues—the soft pale green of spring, the stronger tint of summer, and the bronze of autumn.

The group consists of three trees of Fagus sylvatica pendula, planted by Milner on the boundary of a Spruce plantation about 1860; they cover a length of 80 feet by 27 feet in width. The tallest tree is 50 feet to the highest branch, which was struck by lightning last year. Hanging, as they do, over an undulating valley in the pleasure-grounds, they are an object of admiration to every lover of Nature. (See also illustrations of Weeping Beeches in *Gardeners' Chronicle*, Dec. 24, 1870, p. 170, and Dec. 29, 1900, Supplement). *J. Pentland, gr. to C. H. B. Firth, Esq., Ashwick Hall, Gloucestershire.*

NURSERY NOTES.

THE AMERICAN NURSERIES, DOWNHAM MARKET.

THE oldest part of the extensive and interesting fruit-tree and ornamental tree and shrub nurseries of Messrs. Bird & Vallance dates back some 150 years, and there are now working in the nurseries men of families who for three generations have found employment there. During its long period of existence the culture of hardy trees and shrubs has been steadily adhered to, although the kinds grown have necessarily had to be varied according to the nature of the demand. For example, the name "American Nurseries" was taken because a specialty was made of what are commonly known as American plants, and of which a very large circuit was supplied from these nurseries many years ago. Then Conifers, and especially the smaller and rarer kinds, were extensively grown.

Those old-time specialties no longer occupy the attention they once did, but in the older part of the grounds an interesting memorial of them exists in the stately presence of two noble Sequoia gigantea, which must have been among the earliest of the species planted; in the old Rhododendron-beds, where propagation by layers is still carried on; in the many fine old specimens of still uncommon Conifers; in the large beds containing the general collection; and especially in the dense-growing pigmy specimens of the plant known in gardens as Picea Clanbrassiliana, which it is said have scarcely varied in size within the memory of the oldest man on the place. There are also

some very old standard Hollies, a patch of Bambusa Metake, growing with tropical luxuriance, and a few other links with the past; but when Mr. Vallance acquired the chief interest and management of the concern twelve years ago, a new era commenced, and the culture of fruit trees of all kinds, Roses, Asparagus, and other hardy subjects in large quantities was made the chief object, and so successful has the choice of subjects proved, that throughout the whole of the twenty-four acres, no left-over stock of saleable size, which ought to have been sold can be found. In the matter of soil, the site is very well favoured, for beginning on the upper ground with pure peat, it varies to loam in the lower part, so that suitable soil can be found for all things.

Asparagus is very extensively grown, and large quantities are growing strongly to meet the required supply of about 300,000. The extensive beds are now being carefully weeded, and in this work the Planet Junr. Cultivator is highly spoken of as an efficient and cheap means of cleaning the ground. This implement can be adjusted to suit the distance apart of the rows, and the whole of the surface between the rows is moved as fast as a man can push it along, the rows themselves been weeded by hand afterwards.

The large quantities of dwarf Roses are in splendid condition, notwithstanding that in April some of the tenderer varieties in one piece got apparently much damaged by cold. These soon made themselves up again, and are now showing well for bloom. In this nursery it is noted that aphis, which in some more favourable seasons have been troublesome, have not appeared. Search among thousands of dwarf Roses failed to discover any insects, and the experience is quite the reverse of that in some gardens where the aphis are reported as very abundant this season.

Apples are grown in large quantities, and about 300,000 stocks are being prepared to work for successions. The kinds grown in the greatest quantity are Lane's Prince Albert, Lord Grosvenor, Cox's Orange Pippin, and Worcester Pearmain. Early Victoria, which has of late come into prominence, and which had previously gained a high reputation locally as Emneth Early, is being largely grown, as it is one of the best and quickest to bear of any Apple that can be planted. Bramley's Seedling is a favourite with many, and a good stock is provided, and smaller quantities of each of about 180 other leading kinds, a number which Mr. Vallance states that he would gladly reduce, but that as soon as any are let out of stock they seem to be wanted.

Pears, Plums, and other fruits are equally well done, clean, free young trees of all classes being provided, the quantities of each being varied according to the qualities of the subject.

Sections of the nursery are divided by tall, thin Hornbeam hedges, and that arrangement probably accounts much for the excellent condition of the stock and the absence of damage caused by the recent exceptionally cold and ungenial spring, and which has caused considerable injury to the trees and shrubs in many gardens.

Ornamental Trees, &c.

Among these were noted two special forms of Purple Beech. The trees from which the stock is propagated were selected on account of their beauty and distinctness many years ago, and form fine objects. The best has larger and more ovate leaves, more openly arranged than in the Copper Beech, and until late in the year they are of the darkest chocolate-purple hue. Young stock are specially beautiful, and their elegantly displayed, richly-coloured foliage should render it a valuable subject for using in floral decorations. In landscape gardening it would be a valuable aid. The other kind has smaller foliage, with an undulated margin, and is also a very distinct form.

A large quarter of Paul's Double Crimson Thorn made a great show; a bed of Pampas-Grass, another of Tritoma Uvaria varieties; a quantity of Berberis stenophylla and other flowering shrubs; patches of Golden Elder, variegated Privets, and other coloured foliage-plants were noted; and among the Conifers, quantities of Larch, Spruce, and other popular kinds most in demand.

Every part of the large extent of the place is well kept, and free from weeds or unoccupied ground, for as soon as a quarter of trees is cleared, it is at once prepared for a temporary crop until required for planting again; in that manner ground that might otherwise be unoccupied is now cropped with Potatos, or good culinary Peas for seed. The offices and seed warehouse are in the town, and the whole connected by telephone.

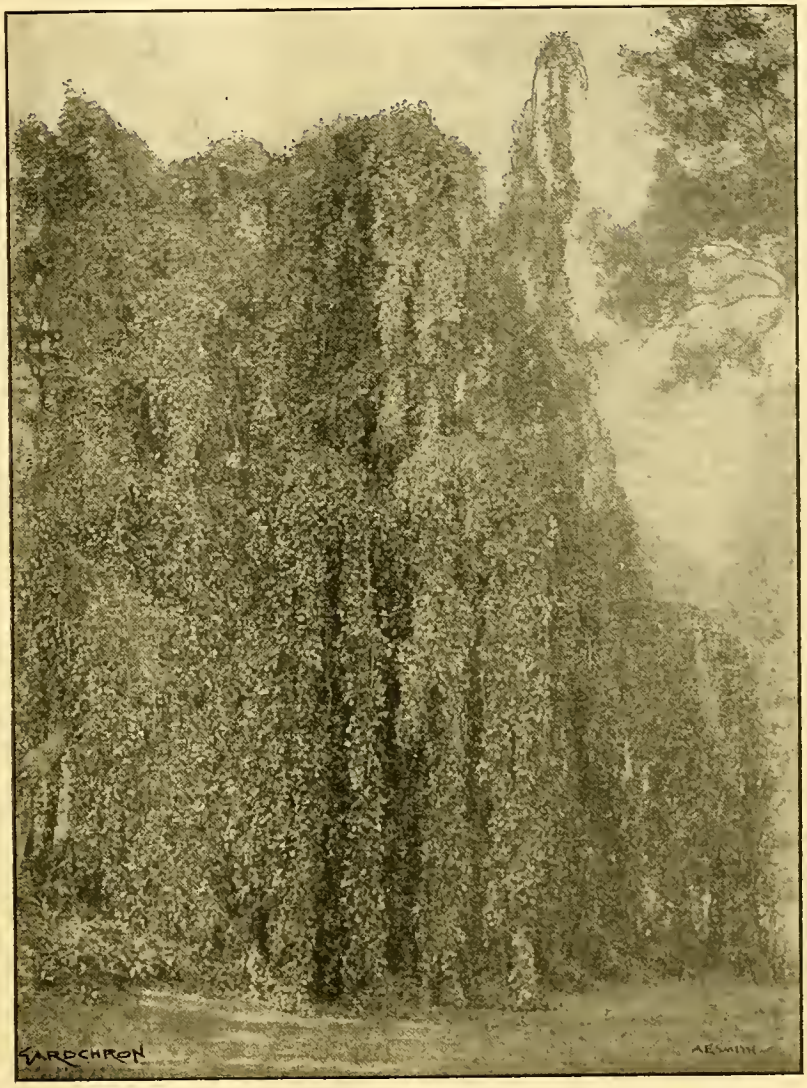


FIG. 155.—WEEPING BEECHES AT ASHWICK HALL, GLOUCESTERSHIRE. (SEE P. 396.)

Messrs. W. Bull & Sons, Chelsea.

This still famous emporium of new plants has been greatly curtailed in area of recent years, much of the land once occupied by ranges of glasshouses having been covered with flats, and as a consequence the present proprietors have concentrated the show and culture houses on the north side of the King's Road, and are replacing the worn-out houses with new and more commodious ones, so far as the space admits of this being done. Like other London nurserymen, the firm sees the necessity of removing eventually further from the evil effects of London fog and smoke. We found in a house devoted to the cultivation of Cypripediums, than which few plants withstand fog and smoke better, a choice collection of healthy young plants, among which were noted fine varieties of C. callosum, also C. c. Sanderæ, C. purpuratum, C. Arthurianum, and C. œnanthum superbum, C. A. de Lairesse, a cross between C. Curtisii and C. Rothschildianum; fine robust plants of C. grande, C. insigne Sanderæ, and others. In this house a plant of Peristeria elata with three flower-spikes, an unusual number, was remarked.

The old house in which Cymbidium eburneum used to be seen in fine condition still contains a collection of these plants, and good trade examples were also remarked, besides plants of C. Tracyanum and C. Lowianum concolor. Belgian leaf mould is used for these plants with good results.

Another house is set apart for Lælias, chiefly anceps and its varieties, of which there is a nice stock. Miltonia vexillaria, M. v. conspicua, M. v. Chelsoni, and M. v. Leopoldi were likewise found in this house in a very good condition.

The crossing and seeding of Cattleyas and Lælias is being sedulously carried on, and seed-

lings innumerable were observed in the seed-pots, or pricked off into other pots, at present all very minute, although in various stages. When a year old they are potted singly. The time taken for the seed to germinate is about six weeks. The crosses of Cattleya Schofieldiana princeps and C. aurea magnifica are calculated to afford some very fine forms. Potfuls of seedling crosses of C. Edward VII. and Lælia purpurata, and crosses with Brassavola Digbyana, it was hoped would bring some fine things; this latter is still in the seed-pot stage. Other crosses were noted, as also Ancectochili of various species, and Goodyeras. A healthy collection of Masdevallias occupied a small span-roofed pit.

Of Odontoglossum seedlings, thousands were coming up in the seed-pans, and many species are being manipulated. Of these crosses great hopes are entertained, but some years must elapse ere the corn can be separated from the chaff.

The house where formerly a display was made with Orchids during early summer is now given up to stove plants, such as Codiæums, Dracænas, and Palms. Amongst the last-named, Licuala Muelleri, a pretty fan Palm destitute of spines, and Kentia ornata, were observed. Jasminum Sambac; Calamus flagellum, a spiny-stemmed species; Aralia triloba, a neat-looking table plant; Cryptanthus nitidus, a pretty plant, with brown and bronzy-green leaves, useful for filling small vases and pots, were observed. A set of new ornamental-leaved Begonias, of much novelty in colouring, are likely to find favour. Epiphyllum delicatum, figured in this journal Dec. 6, 1902, p. 411, is being worked up as small standards, and is likely to be very effective in this form; and Maranta insignis has pretty leafage, as has also Dianella tasmanica variegata, which is white and green. Deyeuxia elegans variegata has likewise white and green leaves, ½ inch wide and 15 inches high; the plant, it is said, never reverts to the primitive green tint.

A collection of economic plants still finds a place in the nursery, as well as Tree Ferns and Cycads of different species.

The Fuchsia is being taken in hand by the firm, and they hope shortly to obtain some startling new forms.

HOME CORRESPONDENCE.

A MOTOR LAWN-MOWER.—I learn that one of those interesting machines, a motor-driven lawn-mower, is in use at Kew. I have not seen it, but no doubt it would interest many readers to learn how it acts there. I had the pleasure a day or two since of seeing one in use on the fine cricket ground at Bournville, Birmingham. It is one of Ransome & Sims' make, of Ipswich. The weight of the machine is considerable, some 15 cwt., but in spite of that it is manipulated with great ease, and driven with the same facility that is found in a carriage motor. I could not but admire the readiness with which the driver, who was perched on a raised seat at the back of the machine, guided it; indeed, in that respect it seemed a toy in his hands as compared with the lumbering motion of a large horse-machine. The Bournville motor has knives 42 inches in width, or rather length; behind these comes a massive roller which carries the bulk of the machine, whilst the steering power is furnished by a handwheel and a smaller roller, which follows the other. The motive power is equal to that of six horses, and can be easily utilised, doing first-rate work at the rate of six miles per hour. At that rate about an acre of lawn is cut per hour. The grass can be collected in a box, which again can be emptied easily by the driver through the action of a lever-handle. When I saw it at work the grass was being left on the ground, which, where the mower is used frequently, seems to be a desirable practice. The motive power is supplied by petrol, which is held in a cylinder, whilst a larger one just below it holds the water required to generate steam. Whether the makers supply smaller motor-mowers I do not know; so far the element of cost seems deterrent, but that they are a great improvement on horse labour there can be no doubt. *A. Dean.*

HEUCHERAS. — The complete revolution in floral fashions that has been experienced during the last few years has driven many gardeners to the verge of despair, as after years of patient labour, expended in the production of massive flowers and striking effects, fickle fashion has suddenly led the public to regard them as vulgar; and where huge flowers were in demand five years ago, the æsthetic taste that holds the sway to-day decrees that the subjects must be light and graceful. There are, of course, many plants that come up to the desired standard of perfection at once, but too many gardeners who have to supply a heavy demand for cut flowers for dinner-tables, &c., overlook the Heucheras. Being perfectly easy to manage, there need be no fear of burdening oneself with extra work, as they thrive in the front of any ordinary herbaceous border; and if protected from the encroachments of their neighbours, and given a little liquid-manure when throwing up their flowers, they will never fail to please. One of the best for general purposes is Heuchera sanguinea splendens, a brilliant coral-scarlet variety of the common type. Other good varieties of sanguinea are grandiflora, a very useful form, with flowers of a crimson-scarlet, and somewhat larger than those of the other varieties; alba, a pure white form; and rosea, a variety with flowers of a soft rose colour. Heuchera macrantha has cream flowers borne on red stems, and is thus very effective when cut and mixed with other varieties. H. erubescens is an exceedingly graceful form, with white flowers pleasingly flushed with pink. H. macrophylla and H. Richardsoni are grown chiefly for their foliage; their ruddy leaves being very effective under artificial light. By crossing sanguinea with Richardsoni, a hybrid has been obtained that is useful both for flower and foliage; it is named brizoides. The above are all quite hardy, and increase rapidly; they are also very effective as pot plants. *F. J. Cole.*

OLD BOOTS IN VINE BORDERS. — Having read Mr. Coomber's paragraph respecting leather as an ingredient in the soil of Vine borders, I wish to relate an instance of a similar kind. When I was under the late Mr. Pragnell at Sherborne Castle Gardens, he used extensively over the drainage of Pines and pot Vines the strips and shavings from a glove factory. As an improver I was given to understand that they acted as a fertilizer when the soil was inclined to become sour and exhausted, also that they prevented worms and other insects entering the pots. They were also used over the drainage of Primulas when receiving their final shift. This flower was a specialty of Mr. Pragnell's, and some of the leaves and flowers I have by me now in a book, show the excellent results of his method of culture. *J. A. Rogers, gr., Grove Park, Kingsbury.*

PEAR EARLY CRAWFORD.—If Early Crawford Pear is such a very inferior variety as your correspondent, "J. R. P.," would lead anyone to believe, who does not know this variety, is it not surprising that so many tons of it are grown for market in Notts? *J. Murray, Sopley, Christchurch.*

[Dr. Hogg, in *The Fruit Manual*, states that the variety is a refreshing fruit, superior to Citron des Carmes, and much grown in some parts of the country. ED.]

DECIDUDUS TREES AND FROST.—The injury done to tree-growth by the recent frosts and cold winds has been enormous throughout the country, and I for one certainly do not remember to have witnessed so many specimens crippled so badly by spring frosts. The previous spell of mild weather appears to have been the predominant cause, for one hears of no really abnormal lowering of temperature, and the state of the trees is pretty much the same between Manchester and London, so far as one's personal observation goes. Thorns have been in many cases entirely denuded of their earliest growths, and consequently of their flowers. Horse-Chestnuts have had their leading shoots killed back half a foot or more, especially on low, exposed ground. In the park and elsewhere at Chesterfield, I find that the above mentioned trees are in a deplorable state; and Limes had even more of their growth entirely killed back, and the same thing was noticeable round Manchester. A struggle is now being made with back breaks, but unless we have a moist, growing summer, and a fine autumn, very great harm will have been done not only to the trees I have specially mentioned, but to many others. I am glad to be able to state that at Shipley the damage has not been nearly so great, owing, probably to its elevated position. In the valleys near, the conditions are much worse. *J. C. Tallack.*

ADVERSE WEATHER.—Here we had ten days of dry, parching weather, with a withering east wind. Previous to this, the rains which we had has so caked or cemented the surface of the ground that it made it difficult for Potatos to break through. To facilitate this, we were obliged to go over the ground with a fork to break the crust. All deep land, even light land, works unkindly. I am truly sorry to see the wreck the frost has made amongst my Lilacs, more particularly Marie Legraye, which showed so profusely. It appears quite autumnal with my Balsam and American Poplars; but the trees of the Italian Golden, which broke later, are healthy. So also are Purple and other ornamental varieties of Beech. Thank goodness, that amongst such a season of frostbitten vegetable wreckage there are some redeeming instances for which we ought to feel grateful. According to the law of circularity, action and reaction is a law of vegetable life. A season of misfortunes is usually followed by a season of success; and when circumstances are most prosperous, a time of reverses is not far off. It is in accordance with the principle of circularity that we naturally expect that when things are at their worst they will mend; therefore, by this argument we are encouraged to hope that the vegetable year of 1904, especially the first section of it, will be more favourable to us than the one of 1903. *W. Miller, Berkswell, June 9.*

POA ANNUA.—The lawns of which I have charge are very full of all manner of weeds, besides the Daisy and the Plantain, and as labour is short with us, and economy is the chief consideration, I should be glad to know if Professor Henslow would inform me if Poa annua would grow to such an extent as to stifle the weeds if seeds be sown thickly in the autumn? *Essex.*

[We should not like to trust to it. ED.]

THE GARDENERS' DINNER.—Your very critical correspondent, Mr. W. Miller, asks "why gardeners are in such haste to dine?" He might just as wisely have asked why being only gardeners they ever want to dine at all. Seeing that the last aggregate "gardeners" dinner was thirty-seven years ago, one wonders where the haste comes in. Mr. Miller seems assured that if these hungry devotees of the spade would but patiently wait until the new horticultural hall is erected, that the gardeners will be invited to dine in it. Of that there is not the least probability, and I am far from thinking that anyone else desires it. Possibly the Council of the Royal Horticultural Society may invite the Fellows to an inaugural reception, but with probably some 7,000 of them by that time, that might be an unpleasantly crowded function. Although our proposed Michaelmas dinner is most likely to be a great success, it by no means follows that another will be desired in the following year. *A. Dean.*

POTATO TRIALS AT CHISWICK. — When at Chiswick recently, it was a great pleasure to me to see the Potatos which are being grown for trial, looking so well. There are over eighty different lots, and with the exception of say half-a-dozen, they are all in excellent condition. The bulk of them should come in for examination at the time of the great fruit and vegetable show, September 29 and 30, at Chiswick. I was struck by what appealed to me as the eminent fairness of the Chiswick authorities, which was illustrated as follows. If a variety promises well but does not quite reach the required standard of perfection, it is the practice to write to the raiser or sender asking a fresh supply of tubers for planting instead of re-planting next season those grown at Chiswick the year before. *William Cuthbertson.*

AN ONION-BED PEST.—The paragraph under the above heading on p. 380 of the issue for June 13 interested me very much, as the particulars given by "A. W." coincide almost exactly with my own experience. These flies, which are long, some black and some brown, hatch out from a small grub, which is about three-quarters of an inch long, and much smaller in the body than the caterpillars found on Cabbages. I have seen thousands of these grubs in the gardens here, and find they are harmless to plant life. I have found them on the Onion, Parsnip, Carrot, and Beet beds; also numberless specimens I have observed when the Celery crop has been cleared, and the ground dug. The grubs seem to become flies mostly when the weather is warm, and especially noticeable are the flies on the Onion-tops after a shower of rain on a hot sultry day. I have seen as many as a score on a single Onion plant. They appear to breed in hot-bed materials of a light sort, such as stable-dung mixed with tree-leaves; and I have observed the grubs in decayed tree-leaves, but never in decayed manure alone. The starling is, generally speaking, a somewhat shy bird; but when the time arrives for these grubs to develop into flies, the starlings lose their shyness to such a degree that a person may approach them within a few yards. *A. Jefferies, Moor Hall Gardens, Essex.*

THE LATE ROBERT MACKELLAR.—The late Mr. Robert MacKellar (see *Gardeners' Chronicle*, February 14), who was an old "Kewite," had been employed as gardener, and afterwards as head gardener, at Abney Hall, Cheadle, Cheshire, near Manchester (not Cheadle, Staffs.), the residence of the late Sir James Watts, and now of his son, James Watts, Esq., since 1869, the year in which he left Kew. He always took a keen interest in the many sciences that go to make a competent horticulturist, and his name appears in the Royal Horticultural Society's list of successful candidates, July examinations, 1868, when he obtained two First-class Certificates, in company with Mr. F. W Burbidge. His early training stood him in good stead, for he was for many years one of the most successful growers and exhibitors in the Manchester district, while his good-heartedness and genial manners stamped him as a man whom it was a pleasure to know. *Stanley Arden, State Gardens, Selangor, Straits Settlements, May 15.*

PEAS AND POTATOS AT WROTHAM PARK. — About the 20th of the present month, is the date on which I usually sow a large breadth of Peas for yielding pods till late in the season; and for this sowing I utilise land which has been deeply dug and well manured some time previously. There are few crops that require more liberal treatment during the early part of their growth than do late Peas, and especially so in hot, dry weather, for if once the plants are severely checked by drought or poverty of the soil, the crop is seldom satisfactory. At one time I grew largely the tall varieties for late supplies, and although in most years the crops were good, I have of late grown and depended almost entirely on the variety Autocrat—a Pea well known for its good quality. It is very important when sowing late Peas not to sow the seeds very thickly in the drills, nor to draw the latter nearer together than 7 feet. Early Peas are this season very slow in filling their pods; the small amount of sunshine, and low temperature nightly, no doubt being the chief causes. Notwithstanding that, the varieties of Potatos grown at Wrotham are looking exceedingly well, but the early varieties are very backward, and need sunheat. Late Potatos are making very strong and robust growth. *H. Markham, Wrotham Park Gardens.*

ANTIGONON LEPTOPUS. — In your issue of May 2, 1903, in the "Home Correspondence" section, appears an enquiry concerning the culture of Antigonon leptopus. Although a native of Mexico, it has been introduced and has become quite general in southern U.S.A., where it is used as a verandah or porch climber. When covered, it will withstand a few degrees of frost, but prefers greenhouse protection. As its flowers are terminal, the quantity of bloom is determined by the strength of the stem; and to secure this, the plant must be cut back severely in early spring and instead of a growth of from 4 to 5 feet, we may reasonably expect a growth of 15 feet or more. It is quite natural to suppose that the Antigonon should be more vigorous in the U.S.A. than in England, owing to the greater power and duration of the sun. Judging from the treatment accorded by the writer, I believe that a more generous treatment would be rewarded by an abundance of bloom. Instead of confining it in a 9 or 10-inch pot, plant it in a large box or border, in a light and rich soil. Give plenty of drainage, and during the period of greatest growth, apply occasionally weak liquid-manure. The chief point in the successful culture of this plant lies in affording an abundance of unobstructed sunlight. To illustrate this point, it may be said that some of the best blooms obtained by us were produced on shoots which had strayed through open ventilators, and whose foliage had become ruddy with light and exposure. *George E. McClure, Missouri Botanic Garden.*

EREMURUS.—I fancy that the doubts of Mr. E. Jenkins about E. Warei are not well founded. I had several plants of this which were distributed, and have now here, a plant in flower showing two spikes of 9 feet in height in remarkable beauty. The flowers form a dense spike of nearly 3 feet, and their colour is a bright citron-yellow. I have others apparently from the same origin (Afghanistan) showing spikes of chamois, pale rosy-flesh, and pure white flowers, all very dense in the inflorescence. A new species from Beluchistan is very pretty, flowering in the middle of May; it is small, but very elegant and striking, the coloration being a glistening yellow. *Max Leichtlin, Baden-Baden.*

THE RECENT TEMPLE SHOW.—It was well remarked of this exhibition, that the amateur element is becoming less and less every year. The Royal Horticultural Society's catalogue of exhibitors shows 109. Of these it is possible to find of those who may be classed as amateurs but fourteen—a very small proportion. That is a very unpleasant fact to genuine horticulturists, as it shows that the exhibition is becoming one of pure trade products, and possibly in a year or two the desirable amateur element may be eliminated absolutely. That cannot be regarded as at all a desirable result. From the few amateurs who exhibited we obtained two fine collections of fruit, and these enterprising persons merit the warmest thanks for sending in such fine quantity so much of what is at once delicious and attractive, yet perishable produce. But the amateur, whether the employing gentleman or the gardener, not only realises that the Temple show is becoming more and more a trade bazaar, a sort of thing for which he has no taste, but also that to expose valuable plants, fruits, or vegetables, for three days in hot, dusty tents, is too injurious to the exhibits, entailing on him material loss, with very little, if any kind of gain. When the gardener is the exhibitor purely, he naturally learns that, apart from the great amount of labour incurred necessarily in collecting his exhibits, taking them to the show, staging them, and returning them, that the expense is very onerous, which the honour of securing a medal by no means repays. Whilst no doubt a few good prizes in certain classes, such for instance as fruits and vegetables to amateur or gardener classes, would attract good competition, and help to save the show from becoming a mere trade market, they would afford the gardener some prospect of pecuniarily recouping those considerable costs which exhibiting entails. Even in Orchids now, as well as in other things, the amateur collections are fast waning away. It is inconceivable that this can be acceptable to the Council of the Royal Horticultural Society. *A. D.*

THE SPARROW.—It is high time that radical measures were enforced to eradicate that pest of the garden, the sparrow—*Passer domesticus*. The most ubiquitous of birds that live, with impudence as astounding as his vitality, and an idea of nest-building as primitive as the palæolithic man's idea of a house; possessed of the most depraved tastes, it is an aberation of the most pronounced type of the genus Aves. Insectivorous only during the brief period of nidification, and that only by force of circumstances, for the remaining period of its existence it enjoys the reputation of being the most destructive of birds to farm and garden produce alike. Your correspondent, Mr. G. Bound, p. 365, is not alone in mourning the loss of the prospect of a fine crop of fruit owing to this depredator; much might be done by gardeners and farmers individually to rid themselves of this destructive pest. *M. A.*

PRIMULA SIKKIMENSIS. — According to the sayings of your correspondent, Mr. Benary of Erfurt, in what regards Primula sikkimensis, I feel inclined to send you the following lines, which I hope will be of some interest to the readers of the *Gardeners' Chronicle*. I am quite in agreement with Mr. Benary; the blossoms of this type of Primula expand at one and the same time, and possess a very strong and pleasant perfume, which often lasts until the flower is completely over. I must say as well, that in none of the Primulas is this peculiar strong scent to be noticed. I have known this species of Primula for several years, and have always attached great interest to it; unhappily, it is not known to cultivators. Having also cultivated it, I may add that it requires a very sunny position, and thrives splendidly in a compost consisting of two parts turfy loam, and one of Cornwall sand. Generally, Primula sikkimensis attains a height of 2 feet, but by following the above information its size is reduced, and it produces numerous large umbels. *C. Recordon, Great Warley, Essex.*

—— We are sending you by this post a flower of the Primula sikkimensis mentioned by Mr. Benary in your issue of the 6th inst., at p. 361. This plant does exceedingly well with us in the partial shade of the Rhododendron-bed. The umbels of delicate yellow flowers are produced on stout stalks about 2 feet high, and are beautifully scented. *Robt. Veitch & Son.* [A very fine specimen. ED.]

"THE JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY."—I was pleased to see that the *Gardeners' Chronicle* of June 6, 1903, has stated "It becomes a question whether, for those of us who have no shelf-room to spare, the more ephemeral portions could not be issued separately." I had been thinking of this very thing for some time. The journal has now become a ponderous volume, difficult to hold, and requires a desk, or other support to put it on. One portion of it is likely to be interesting to all the Fellows, while another portion would most likely be interesting to a certain number only of the Fellows. If the latter were issued in a separate volume as an appendix, it might, perhaps, reduce the expense of printing the whole in one volume and issuing it to everybody. Only a certain number of copies of the appendix would be needed for those who might signify their desire to have it. As it is, the most interesting part of the *Journal* might run the risk of remaining unread, owing to the weight of the volume. *E. Bonavia, M.D.*

SCOTLAND.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

This body was singularly fortunate this year in choosing Dundas Castle for its summer outing. It is an old place, which had been allowed to get into a somewhat neglected condition, the traces of which, however, have been altogether obliterated since the property was acquired by Mr. Stewart Clark a few years ago, since which time improvements and alterations have been uninterruptedly in progress. At the present time extensive operations are in hand connected with the extension and deepening of an artificial lake, and as indicating the thoroughness of Mr. Stewart Clark's methods, an immense excavation 30 feet in depth has been effected at the south end, and is being filled with a wall of solid concrete in order to stop completely and for ever a leak that had been troublesome in the past. Improvements that appealed more strongly to the gardeners of the party of about sixty gentlemen were respectively the new building in which the young men are made at home, and the reading and recreation rooms, with its piano, fireside games, library, and magazines provided for the people engaged on the

estate. The old bothy has been, by means of thorough adaptation, altered to a convenient and well-equipped fruit store.

Previous to inspecting the gardens, with Mr. MacLennan as our cicerone, the old Castle of the Dundas' family was visited, its thick walls and uncomfortably secure apartments being matter of wonder to the visitors; while the view from the battlements, embracing the opposite coast of Fife, a long stretch of the Firth of Forth, with the great railway viaduct below, and the thickly-wooded policies of Lord Rosebery's home on the near side, excited unqualified admiration. Dundas is rich in Rhododendrons, and the masses of these in flower added much to the general effect. Hence, passing over a thickly wooded ridge, we reached the gardens, lying snugly in a hollow sheltered from the north by lofty escarpments of natural rocks, an extensive artificial rockery dividing these from the garden. Dodecatheon "Snowflake," Heuchera sanguinea, intensely coloured; and Primula farinosa, in splendid condition, being examples of plants that were greatly attractive. Close by is a range of four plant-houses, one devoted to Melons and Tomatos, the latter growing three in a pot; and quantities of Crotons, Dracænas, Caladiums, Calanthes, and other furnishing materials. Another division is filled with a large collection of cool Orchids; yet another mainly with warm-house Orchids, Palms, Ixoras, Ferns, Pancratiums, some of which are large specimens filling the rest of the range.

In another range Roses were flowering, and here also is a large greenhouse furnished with the usual plants in season, and a more than ordinary number of specimen flowering plants, such as Rhododendrons and Acacias. Another structure is devoted to Carnations, and in addition there are two Peach-houses, a Fig-house, with trees producing abundant crops of fruit; and four vineries, all furnished with Vines of great age, but this fact, notwithstanding, carrying heavy crops of good Grapes of the usual late and early varieties and Muscats. The back wall of the structures is utilised, Cape Gooseberries, Smilax, double-flowered Pelargoniums, and Heliotrope, being a few of the more noteworthy plants employed to cover it.

In the open-air gardens Roses and Carnations are cultivated in immense quantities, and the usual herbaceous flowering plants are grown in borders, backed with fruit trees. A good many late-flowering Tulips were still in evidence, and the kitchen-garden crops also were later than usual. On the closely-cropped lawns there is still abundant space for bulb planting, and the naturalisation of Primroses and other spring plants, few of which were noticed during our protracted rambles about the grounds. Except the commoner Coniferæ, better class trees and shrubs have not yet been introduced extensively, but there is abundant space for these also.

The company, previous to their return to Edinburgh, were by the kindness of Mrs. Stewart Clark, invited to tea, and after leaving the dining-room were conducted over the sumptuously furnished house. A very cordial little speech from that lady was much appreciated, and was replied to in suitable terms by Mr. McHattie, President of the Association, who at the same time thanked the heads of departments.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JUNE 9.—*Present:* Dr. M. T. Masters, F.R.S., in the chair; Messrs. Worsdell, Druery, Saunders, Massee; Dr. M. C Cooke, Rev. W. Wilks, and Rev. G. Henslow (Hon. Sec.).

Larch, Diseased.—Mr. MASSEE gave the following report on branches sent by Mr. Elwes to the last meeting:—"The ample material sent showed that the diseased condition was due to two distinct causes: 1, the yellow and bent leaves were caused by the aphis known as Chermes laricis; 2, the exudation of resin on the branches was due to the presence of the fungus called Dasyscypha calycina (formerly Peziza Willkommii). The relative immunity and susceptibility of trees growing on varying kinds of soil, and occupying different positions in a plantation, as pointed out in the letter accompanying the specimens, can only be solved after an exhaustive examination of a number of plantations, situated in different parts of the country, has been carried out. This implies field work, and cannot possibly be solved in the laboratory."

Diseased Plum trees.—Dr. M. C. COOKE reported as follows upon some specimens sent to the last meeting: "The fungus will be found described in the Royal Horticultural Society's *Journal*, vol. xxvi., part i, April, 1902, at p. 742, fig. 313, where its ravages are depicted as a wound parasite affecting the wood. The mature condition is Eutypella Prunastri, but the portions sent me only exhibit the condition of conidia known as a species of Cytospora. These appear on the bark of living trees. Later on, and after the wood is quite dead, the mature pustules of the Eutypella are developed. I have never seen the perfect fruit exhibited upon any but dead wood. It is quite akin, and closely allied to the Valsa ambiens of Apple-trees. I doubt whether any successful method can be adopted when trees are attacked, but preventive measures may be used by spraying healthy trees with Bordeaux mixture, so as to kill external germs which may be lurking to find admission. When branches are seen to be attacked, it is better to prune off the branch below the infection, and burn the diseased wood, at the same time taking care to protect the wound caused by the amputation. The disease is liable to spread from tree to tree throughout an entire orchard unless some such heroic measures are adopted." See *Gardeners' Chronicle*, September 27, 1902, p. 235, fig. 80.

Mangold diseased.—Mr. MASSEE showed pieces of roots cut up for manure, as they were badly attacked by the fungus Phoma rabifica, which infects the Sugar Beets on the Continent. On inquiry he found that one-half of the stored roots of the "Yellow Globe" were diseased. It was the second year of the appearance of the fungus.

Larch killed by salt spray.—Mr. MASSEE alluded to trees some 25 miles inland, which were killed in the gale last March, and alluded to other instances when salt was detected on the leaves of trees from 30 to 50 miles distant from the sea. Dr. MASTERS mentioned the remarkable case of a Japanese Maple on Messrs. John Waterer's grounds. The leaves on one-half of a tree were killed by salt spray. In the next year that half flowered, and from the fruits abundance of seed was obtained.

Plants attacked by Millipedes.—Mrs. Baxter, of Doncaster, sent plants of German Asters, Stocks, &c., attacked by millipedes, upon which Mr. SANDERS reports as follows: "They are the Spotted Snake millipede (Julus guttulatus). It is a most destructive pest in gardens, and one that is very difficult to get rid of, partly on account of the hardness of their skins, which prevents most insecticides from having any effect on them, and partly, that as they live generally below the surface of the ground, their whereabouts are not known until some plant is found injured by them. A strong solution of nitrate of soda, or common salt, is said to kill them if it can be made to reach them of a proper strength. This is not easy, however, to effect, as the insecticide becomes weakened by passing through the soil. They may be trapped by burying small slices of Turnips, Mangolds, Carrots, or Potatos, or pieces of oil cake, just below the surface. It is useful to stick a small wooden skewer into each, so that it may be known where they are buried; it also renders them more easy to handle. These pests attack a large number of different kinds of plants, and are exceedingly fond of ripe Strawberries."

Box edging with Insects.—Mr. SAUNDERS reports on specimens received from Rev. H. C. Brewster, South Kelsey, Lincoln, as follows: "The insect on the Box edging is Psylla buxi, nearly allied to the Aphidæ, but is one of the Psyllidæ. Spraying the edging and the large bush with paraffin emulsion or some similar insecticide, would be the best plan of destroying it."

CHISWICK.

JUNE 11.—*Present:* H. B. May, Esq. (in the chair); and Messrs. R. Dean, J. A. Nix, C. E. Shea, J. Hudson, C. R. Fielder, C. Jeffries, and G. Reuthe.

A meeting of the Floral Committee was held at the Society's Garden on the above date, and those members who attended are not likely soon to forget the occasion. Although the rainfall was much less than on the 10th inst., there was a steady and almost continual downpour during the greater part of the day, in consequence of which the Irises were examined under the most unfavourable conditions. Altogether twelve varieties were Highly Commended, and one Commended.

HIGH COMMENDED (XXX).

Iris pallida.—Although introduced from the Mediterranean region towards the close of the fifteenth century, it is even to day by no means well known. It produces strong spikes 2 feet to 2 feet 6 inches high, and bears large rather fleeting fragrant flowers, with broad incurving lavender standards, and pale purplish-lilac falls, netted with white on the basal half; beard rich yellow; leaves broad and glaucous. From Messrs. BARR & SONS, King Street, Covent Garden; and Messrs. JAS. VEITCH & SONS, King's Road, Chelsea.

Iris pallida dalmatica—One of the largest and best of the pallida section, and generally later in coming into flower than the type. The shapely delicate lavender flowers stand up well above the glaucous foliage. It is very floriferous and sweet-scented. From Messrs. BARR & SONS and Messrs. JAS. VEITCH & SONS.

Iris pallida, Cæleste.—Another pretty variety, with lovely pale blue standards, passing to French-grey towards the base, and deeper coloured falls veined with blue on the basal half. From Messrs. BARR & SONS.

Iris pallida, Queen of May.—A handsome and fairly well-known variety, quite distinct from the foregoing. Standards rosy-lilac or purple, falls rich rosy-purple, beautifully netted with a paler shade of the same colour. From Rev. W. WILKS, Shirley, Croydon; Messrs. BARR & SONS, and Messrs. JAS. VEITCH & SONS.

Iris pallida, Albert Victor.—Tall and vigorous, with unusually broad glaucous leaves, and bold fragrant flowers with blue standards, and broad blue falls slightly suffused with rose. Grand for massing. From Messrs. JAS. VEITCH & SONS.

Iris squalens, Walneriana.—The members of the squalens group are characterised by brooze, fawn, and dark coloured standards. The variety Walneriana is less vigorous than Arnols, and produces rather slender spikes, bearing from four to eight flowers with bluish bronze standards, and deep blue falls marked with brown and yellow on the lower half; beard large, deep yellow. From Messrs. BARR & SONS.

Iris sibirica lactea.—I. sibirica, or Siberian Flag as it is generally called, is effective by lake and pond side. The variety lactea differs from the type by reason of its standards being white, and falls cream-white. From Messrs. BARR & SONS.

Iris amœna, Mrs. H. Darwin.—Of excellent habit, very floriferous, and one of the most beautiful of white-flowered garden Irises. Standards broad, incurving, white; falls white, reticulated with pale violet. From The GUILDFORD HARDY PLANT NURSERY, Millmead, Guildford, and Messrs. JAS. VEITCH & SONS.

Iris amœna, Innocenza.—A strong grower, and quite a week later than the last-named in expanding its large lovely ivory-white flowers, which are distinctly veined with purple on the lower part of the standards From Rev. W. WILKS, Messrs. JAS. VEITCH & SONS, and The Guildford Hardy Plant Nursery.

Iris variegata, Darius.—An uncommon and exceptionally floriferous variety, with large yellow standards edged with a deeper shade, and broad spreading light purple falls margined with cream white; rich yellow beard. From Messrs. BARR & SONS, and Messrs. JAS. VEITCH & SONS.

Iris variegata, Gracchus.—This is very beautiful, of sturdy upright habit and remarkably free flowering. Standards broad canary-yellow, occasionally streaked with purple; falls broad and spreading, pale yellow, distinctly veined and flushed with purple. From Rev. W. WILKS

Iris variegata, Mrs. Neubronner.—A recent introduction of sturdy habit, with large, substantial flowers of much beauty. Standards deep yellow, reminding one of Prince of Orange; falls lemon-yellow with a rich yellow beard. From Messrs. JAS. VEITCH & SONS.

COMMENDED (XX).

Iris pallida mandraliscæ.—A handsome variety, with medium-sized flowers, borne on strong spikes, 2 feet to 3 feet high. Standards pale blue; falls long and broad, rich lavender touched with purple

ROYAL INSTITUTION OF SCIENCE AND ART, DUBLIN.

ON the occasion of the meeting on Monday, June 8, Prof. T. Johnson, D.Sc., exhibited, and described with the aid of lantern illustrations, the American Gooseberry mildew, Sphærotheca mors-uvæ (Schwein), which was recorded for the first time from Ireland in 1900 by Mr. E. S. Salmon, F.L.S., of Kew, from material sent to him by Mr. F. W. Moore, of Glasnevin, from diseased Gooseberry-bushes at Ballymena, in co. Antrim (see *Gard. Chron.*, August 25, 1900, p. 143, fig. 39). The pest causes great damage in America to the Gooseberry, Currant, and other forms, wild and cultivated, of the genus Ribes. Its presence has been for several years past recorded in several parts of the north-east of Ireland. In one case a quarter of an acre of plants were all attacked, and instead of as usual half a ton of Gooseberries being sent to market, only 5*s.* worth are now available. The specimens exhibited at the Academy meeting came from Foxrock, in county Dublin, from bushes suffering from the disease this year, last year, and possibly the year before, too. When attacked the fruit looks as if dipped in flour, and later on it and the branches show a rusty-red or brown cobweb. Spraying the bushes at intervals of ten to twelve days with a

solution of sulphide of potash (2 ozs. in 3 gallons of water) has been found the best means of removing the disease, short of burning the bushes. As the spread of the destructive pest is much dreaded, growers finding it on their bushes are advised to send early intimation of it to the Secretary of the Department of Agriculture and Technical Instruction for Ireland.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

June 12.—*Committee present:* Messrs. Gratrix, Warburton, Leemann, Elijah Ashworth, Cypher, Parker, Rogers, Williamson, Cowan, MacNab, Upjohn, Holmes Duckworth, Keeling, Weathers (Hon. Sec.).

There was a good display of plants, including a choice group of Odontoglossums from S. Gratrix, Esq. (gr., Mr. G. Cypher). Odontoglossum crispum var. "Alport" received an Award of Merit. It is a good round flower, of a rosy tint, with large distinct markings. Cattleya Mossiæ West Point var. also received an Award of Merit. The group was awarded a Silver Medal.

W. Duckworth, Esq., Flixton (gr., Mr. Tindall), exhibited a very handsome group of plants, the central figures of which were two plants of Cattleya Mendeli Quorn House var. (First-class Certificate); Cattleya Mossiæ var. Cahuzæ, previously certificated; C. M. var. Flixtonensis (Award of Merit); C. M. var. Phyllissiæ (Award of Merit); and a well-grown plant of Epidendrum Randi. The group was awarded a Silver-gilt Medal.

O. O. Wrigley, Esq., Bury (gr., Mr. Rogers), again sent his entire stock of Lælia majalis, consisting of fourteen plants, all splendidly grown and in flower (Bronze Medal and Cultural Commendation).

E. Ashworth, Esq., Wilmslow (gr., Mr. Holbrook), sent a fine Cattleya gigas var. Asbworthianum, rich in colour, and of fine size (Award of Merit).

Messrs. John Cowan & Co., Ltd., Gatesacre, sent a few showy plants, one of which, viz., Cypripedium × Tautzianum var. Youngii, received an Award of Merit (Bronze Medal for group).

Mr. A. J. Keeling, Bradford, exhibited Lælio-Cattleya × Martineti, and a distinct form of Odontoglossum × Adrianæ (Bronze Medal).

Messrs. Charlesworth & Co., Bradford, obtained an Award of Merit for Odontoglossum Pescatorei var. "Beauty," a well formed flower, nicely marked with violet coloured spots. *P. W.*

NATIONAL CHRYSANTHEMUM.

The annual outing of the members of this society, will be held on Monday, July 13, when a visit will be made to the gardens and grounds of Park Place, Henley-on-Thames, by kind permission of Mrs. Noble. Arrangements have been made by which the party will leave Paddington, Great Western Station, at 10.30 A.M., to Reading, calling at Ealing and Slough, and on arrival embark at Caversham Bridge, on the "River Queen" steam launch, and proceed to the landing stage at Park Place. Dinner will be served in the grounds at 2 P.M., after which there will be an inspection of the gardens. Tea will be served at 5 P.M., and at 6 P.M. the return journey will be made so as to catch the fast train to London at 8.25 P.M. from Reading, which stops only at Ealing. The cost of return rail and river journey, dinner and tea, is 10*s.* 6*d.* Tickets can be obtained of the Secretary, Mr. R. Dean, Ealing, W.

GHENT.

Meeting of Belgian Horticulturists.—At the last meeting of the Horticulteurs Belges et Société Royale d'Agriculture et de Botanique of Ghent, the following awards were made:—Certificates of Merit: For cut flowers of Iris germanica (*à l'unanimité*), from M. G. Kerckvoorde; Hippeastrum species, from M. Th. Pauwels; and Hydrangea Hortensia flore-pleno, from M. De Vriesere-Remens. A Certificate for cultivation and blooming was awarded for Azalea pontica alba odorata, from M. Ch. Gazelle (*à l'unanimité*); and a Certificate for cultivation for Ficus japonica, from M. I. De Smet-Duvivier (*par acclamation*). Certificates of Merit were awarded for Cattleya Mossiæ Ronseleana, Lælio-Cattleya Canhamiana alba (L. purpurata × C. Mossiæ) (*par acclamation et avec félicitations du jury*), and for Cattleya labiata Warneri, all these from M. le Marquis De Wavrin; also for Lælio-Cattleya Canhamiana var. albo violacea, from M. A. Peeters, of Brussels (*par acclamation*); and for Oncidium crispum var., for Cattleya hyb. dolosa × lobata, and for Lælia purpurata var., all three from M. E. Praet. Certificates for cultivation and flowering were allotted for Miltonia Roezli, and for Odontoglossum crispum, from M. Th. Pauwels. Honourable Mention for Cattleya Mendeli, from M. E. De Clercq; and Honourable Mention for blooming, for Oncidium leucochilum, from MM. J. Vande Putte et Cie.

NATIONAL FEDERATED ASSOCIATIONS OF RETAIL FRUITERERS, FLORISTS, AND GREENGROCERS.

The half-yearly conference of the National Federated Associations of Retail Fruiterers, Florists, and Greengrocers, was held at Bath, on Monday and Tuesday, June 8 and 9, the officials of the local Association—Mr. Rudman (President), A. E. Vaughan (Treas.), and A. T. Gandy (Secretary), having made arrangements which gave the utmost satisfaction to the visiting delegates, and made their visit pleasureable. Mr. W. E. Boyes was cordially re-elected President. On Monday evening a dinner was held at Fortt's restaurant.

The President said that the objects of the Federation were the development and improvement of the fruit trade. One of the foremost of these was the suppression of street hawking as at present in vogue. They noticed near the Abbey at 2 o'clock that day a hawker with his barrow who was still there at 7 P.M., and yet any shopkeeper in that vicinity who, for so much as an hour at a time, kept a basket outside his shop, for which he paid rent and rates, would be prosecuted, although he paid rent, rates, and taxes as well, and the hawker did neither. The question was of importance to the general public, because the fruit the hawkers sold had often, through force of circumstances, and the absence of accommodation, to be left in an insanitary condition and in the worst of places. In Leicester it had actually been found that the contents of the barrows had been stowed away under the bed at night. If that was not likely to promote the growth of bacterial germs he did not know what was. He trusted the Bath City Council would be induced to make a stand in the matter. The procedure was easy, as by enforcing Clause 13 of the Markets and Fairs Act of 1847, they could stop all hawking unless each hawker paid a licence of £2. It had been advantageously enforced in Leicester. The provision also applied to the grower of fruit and vegetables in the surrounding districts, who came into the city and sold without paying any tolls to the city authorities, to the disadvantage of tradespeople inside, who had to contribute to the upkeep of the city.

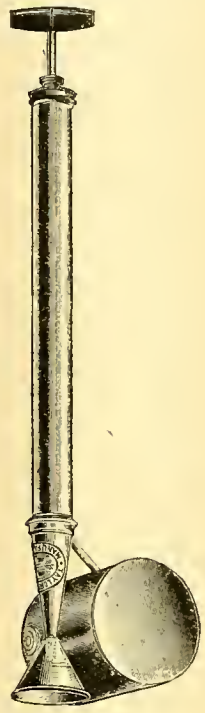


Fig. 156.—A new kind of sprayer.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

At the recent monthly meeting, six new members were elected. The death certificate of the late Mr. E. Berry, of Rochampton, was produced, and a cheque was drawn in favour of Mrs. Berry, for the amount standing to the late member's credit in the ledger. Six members were reported on the sick fund. The application of two members to pay the higher scale of contribution was granted.

LAW NOTES.

POLLUTION OF WATER.

An important trial in the High Court of Justice, London, before Mr. Justice Swinfen Eady, recently held, gave occasion to call evidence as to the chemical effect upon chalk of certain organisms. It was contended by defendants' counsel, Mr. Fletcher Moulton, K.C., that the plaintiffs' chalk quarry was polluted by natural causes, and not as alleged by plaintiffs by the waste sulphide liquor from the defendants' adjoining works, and evidence was given to prove that the discoloration of the chalk complained of, arose from the breaking up of the sulphates found in the water which poured into the chalk quarry by the action of bacteria, the peat through which the water came, and possibly also the drainage from a neighbouring marsh, supplying the bacteria. These organisms which are classed under the head of Beggiatoa, represent a type of Algæ that are much more highly organised than ordinary bacteria, their protoplasm frequently containing sulphur granules which are not crystalline, and they are usually found in sulphur waters.

In his elaborate and lucid judgment, Mr. Justice Swinfen Eady, decided that the theory of the defendants' chemical witnesses, could account only for some very small portion of the large quantity of sulphur and sulphuretted hydrogen, undoubtedly found in the chalk quarry, and that the injury done to the plaintiffs' chalk was caused by the sulphide liquor, which escaped from the defendants' works, assisted by the waste warm water from the same works.—Verdict for the plaintiffs. *W. Roupell, June* 13.

NEW INVENTIONS.

THE "TALA" SPRAYER (*see fig.* 156).

The number of sprayers are legion, and one of the latest bidders for extraordinary efficiency is this sprayer, which is said to be made on an entirely new principle, and is a perfect insect or blight destroyer. The spray is the finest it is possible to produce. The sprayer can be used with bitter oil, &c., for destroying aphides, red-spider, and most insect pests to which plants are subject, and for greenhouse and conservatory work generally. The spray being so fine, it falls like dew on the plant, and does not damage the most delicate bloom or foliage. For cut flowers bouquets, &c., it is invaluable. For hospitals and sick-rooms it is a perfect disinfectant; by filling the drum with carbolic or other disinfecting fluid, rooms, blankets, clothes, &c., can be quickly and thoroughly disinfected. For spraying the poultry-house, live stock, &c., fill the drum with disinfecting fluid. It is equally good as a powder-distributor as a sprayer. It can be used without the operator getting any back drip on his clothing. It is perfectly simple in construction, and will not get out of order readily, is stated to effect at least a saving of 50 per cent. on one's insecticide account, and the makers guarantee it to fulfil its purpose in every way. It is sold by the Hull Chemical Works, Ltd., Hull.

Canada.—We have received from the Government of Canada, a large wall map suitable for schools and public institutions. It embodies the latest information with regard to the topography of the country, railways, new settlements, &c., and should be of service in educating the mother country and affording instruction to the would-be emigrant. Applications should be addressed to the Canadian Government Offices, 11 and 12, Charing Cross, London. For ourselves, we only wish the Canadian Minister of the Interior, at whose instigation the map has been executed, could also supply us with sufficient wall space to hang it.

SOUTH AFRICA.

(*Concluded from page* 390.)

FROM VRYBURG TO MAFEKING.

HERE there was an "Arbour-day," and the children planted an avenue of Pepper-trees, which, if all goes well, as the town develops, will be the Park Lane of Mafeking. There is a carriage-drive in the centre, and on each side a double row of Pepper-trees. Unfortunately, they are planted too far apart, so I suggested they should plant alternately in the same line a tree of Grevillea robusta. It would rise above the Pepper-trees, and its great masses of yellow blossoms would be attractive. On my second visit to Kimberley I found Mr. Fenner had been doing this at Kenilworth.

From Mafeking I went to Lobatsi, halfway to Bulawayo. Had my purse been longer, I should have gone there, and also to Salisbury, and visited the ancient ruins of Zimbabwi. That would have been doing South Africa as it should be done, but I felt that I must draw the line at Lobatsi. Here I found the most beautiful plant I have seen in South Africa. Going up the gorge with a Kaffir, my eyes fell on what I took to be a Cactus growing all alone in a ledge of the rock. I told the boy to collect it, and place it beside the path for us to pick up on our return. When I came to tie it up in a newspaper, I found growing from the root a long brown speckled flower, vandyked at the mouth, and came to the conclusion that it was a Stapelia. Taking the plant as a whole, I thought I had never seen anything so lovely, and the flower did not smell badly. On my return to the hotel, I was told there were plenty on the hills, so the following day the boy and I had a search, but could not find another. I sent it to Mr. Chalwin with a few bulbs I had collected, informing him if he wanted more to write to a young fellow who is stationed at Lobatsi to engage boys for De Beers. Returning to Mafeking I went further into the country, and gathered some dwarf small-flowered Crinums with the outer petals purplish-crimson; also some Albuca aurea minor, I suppose. The flowers are beautiful, and about the size of Fritillaria armena, and as rich a yellow colour. I am sure it will make a good pot plant, six in a pot. I also found a small dwarf dull green flower, not unlike a poor variety of Scilla nutans; not beautiful, but interesting. All these I consigned to Mr. Chalwin to take what he wanted, and send the remainder to my sons. I hope they will be able to show them in 1904. From Mafeking I went to—

ALIWAL NORTH,

a pretty little town well, but not wisely, planted with trees. It is famous for its hot spring, and is much frequented by persons suffering from rheumatism. The baths are a short distance out of the town, but without any accommodation, and on this account bad for invalids; some day a company may take them in hand, and then they may become popular. The following is the analysis of the water by Dr. Hahn, Government analyst:—One gallon of water contained 7·41 grains of carbonate of lime, 1·95 sulphate of magnesia, 3·34 ammonia, 0·95 potash, 8·10 chloride of calcium, 61·35 common salt, 1·04 silica, 5·22 carbonic acid gas. The depth of the spring is unknown; one of our Tommies got drowned in it—whether he had a fit or got sucked down no one can say. This town was a centre of the war-storm, and there were many soldiers here, block-houses, sangers, &c. The Tommies used the spring as a warm bath, and had a rope fastened across the area to prevent accident.

From Aliwal North I proceeded to Standerton, to see if Gatacre's disaster could be accounted for. There I was fortunate in dropping into the house of a loyalist farmer, with whom I had a cup of tea and a long chat. I asked him he was an old countryman, and he replied, "I am a colonial." He has lost all clue as to where his family came from, and his name being Roberts, and his figure very Welsh, I said, "You must have sprung from an early Welsh emigrant." I have observed that few families at home can go back further than their grandfather. It is, therefore, not so very remarkable that emigrants from Great Britain who have not maintained a correspondence with the home land should lose all clue to their ancestors.

QUEENSTOWN BOTANIC GARDEN.

Queenstown was my next resting place. At the Botanic Gardens I had a delightful chat with the honorary curator, and in the evening spent a pleasant hour with Mr. Galpin, well known for his botanical research, fine herbaria, and valuable library of botanical works, ancient and modern. Under the Thorn trees (the popular name for Acacia horrida), I collected some Stapelias for Mr. Chalwin. Mr. Galpin said there were two species around Queenstown, one very rare, and the other growing under Thorn trees, S. grandiflora. Here, as in other places, everything was burnt up; the town reservoir was almost empty, and the town was only allowed one hour's supply of water out of twenty-four. Botanists visiting Queenstown should by all means see Mr. Galpin. He knows what plants we like and where they are to be found; not only that, but his knowledge of South African plants is simply wonderful. The Barberton Daisy, he informed me, at Barberton is blood-crimson, and sparkles in the sun like the Guernsey Lily. Other plants growing there have the same rich sparkle. I suggested that the brick-scarlet variety we cultivated might be an inferior var., but he said "No, we had the best variety, but not enough sun to bring out the true colour." May I suggest our culture has something to do with change in shade of colour. We grow the plant in good soil, whereas at Barberton it grows amongst the rock in the driest and hottest spots, and in full sun. I had hoped to visit Barberton, but was told it was the fever season, and therefore thought it the better part of valour to give the district a wide berth. Queenstown is really a pretty place. *Peter Barr, V.M.H.*

PLANT NOTES.

MICHAUXIA TCHIHATCHEFFI.

THE distinct character of M. campanuloides makes it well worthy of a place in the flower border. Its biennial character is, however, a disadvantage in many places, for there are people who prefer an annual or a perennial plant to one which is only of biennial duration. M. campanuloides has been a long time in cultivation, but it is now less frequently seen than it was forty years ago. It is probable, however, that the introduction of M. Tchihatcheffi may lead to some notice being taken of the older species, though they are totally distinct in appearance. M. Tchihatcheffi was introduced several years ago by Mr. Siehe of Mersina, and it was first, if I remember aright, figured in the *Gardeners' Chronicle*. [See *Gardeners' Chronicle* for March 20, 1897, p. 182, fig. 53.] I fear, however, that it has not been generally satisfactory in our British gardens, as I have only heard of a few places in which it has flowered. I have cultivated it since, shortly after its introduction, but the plant has failed to flower, although it is hardy in my garden, and appears to be a true perennial. The best flowering specimen I have as yet seen was in the Royal Botanic Gardens, Edinburgh, in the course of last year. At the time of my visit the flowers were not fully open, but a number of flowers were expanded, so that one could observe its true character. This was in July, and the plant was much taller than the few I had seen previously, reaching a height of about 5 feet, and showing every sign of opening quite a multitude of its flowers, closely set on thick spikes. The flowers are dull creamy-white, which is not a popular colour with most people. This Edinburgh plant was growing in one of the borders directly in front of one of the houses in the range. In my own case it has produced foliage year after year, but this has died away in the course of the summer, the plant resting for a considerable time before making fresh growth. I have had the plant on rockwork, so as to secure as far as possible its native conditions in the Cilician Taurus; but I propose removing it to a moister position. The plant has a tap-root, that goes deeply into the soil, so that one would have expected it to penetrate far enough to reach what moisture it required. I think the point of its proper position in the garden is of considerable importance. I shall be glad to hear the experience of others. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period June 7 to June 13, 1903. Height above sea-level 24 feet.

1903. June 7 to June 13.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 7	N.	55·0	50·0	63·7	41·0	...	58·1	56·9	53·9	37·1
MON. 8	N.E.	60·1	52·8	69·0	48·9	0·53	57·3	56·4	53·9	43·5
TUES. 9	S.E.	54·6	53·0	65·8	50·3	0·26	57·2	56·2	53·9	47·5
WED. 10	E.S.E.	55·1	54·3	59·2	53·8	0·90	58·2	56·3	54·0	49·3
THU. 11	N.N.E.	54·7	53·8	56·2	54·3	0·20	57·8	56·3	54·0	53·7
FRI. 12	N.N.E.	52·8	47·7	58·9	45·0	...	55·9	56·2	54·1	41·5
SAT. 13	S.E.	56·9	52·5	58·0	37·8	1·30	54·9	55·9	54·1	29·3
MEANS	...	55·8	52·0	61·4	47·3	Tot 3·19	57·1	56·3	54·0	43·1

Remarks.—A week of sunless weather, with an unusually heavy rainfall.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending June 13, is furnished from the Meteorological Office:—

"The *weather* during this week differed very considerably in the various parts of the kingdom. Over Ireland, Scotland, and the north of England it was mostly fair and dry, while elsewhere the sky was usually cloudy or overcast, and some heavy falls of rain were experienced. Thunderstorms occurred on Tuesday and Wednesday over south-western and in some central parts of England, and at the end of the period in many southern localities.

"The *temperature* was a little above the normal in Scotland, W., and over Ireland, but from 1° to 3° below it in the other districts. The highest of the maxima were registered during the earlier days of the week, when they ranged from 76° in Scotland, N., Scotland, W., and Ireland, N., to 69° in Ireland, S., to 67° in England, S.W., and to 65° in the Channel Islands. Later on, the daily maxima over Great Britain were often below 60°, and in several instances below 50°. The absolute minima, which were recorded either on Friday or Saturday, were as low as 26° or 29° respectively in Scotland, E. and N., and 32° in England, N.E., while elsewhere they ranged from 36° in Scotland, W., and England, N.W., to 44° in Ireland, S. In London and at Hillington, thermometers on the grass during the night of Friday-Saturday recorded 30° and 27° respectively.

"The *rainfall* was less than the mean over Scotland, Ireland, the N.W. of England, and the Channel Islands, and just equal to it in England, N.E.; in all other districts an excess was shown, the fall in England, S., being three times as much as the average. The largest

aggregate fall at any individual station was 2·91 inches in London. In the extreme northwest and north of the kingdom the fall was very trifling.

"The *bright sunshine* was very deficient in nearly all English districts, and rather in Scotland, E. In Ireland, England, N.W., and Scotland, N. and W., however, there was an excess. The percentage of the possible duration ranged from 49 in Scotland, W. to 39 in Scotland, N., to less than 30 in the eastern half of Great Britain, and to 20 in the Midland Counties."

THE WEATHER IN WEST HERTS.

Extraordinarily Heavy Rains.—The past week was very cold, particularly during the daytime. For two days the temperature in the thermometer-screen never rose higher than 51°, which is about 17° colder than is seasonable, and the lowest maximum reading I have yet recorded here in June. On the coldest night the exposed thermometer just touched the freezing-point, the greatest cold so far this month. It is, however, very seldom that a lower temperature than this is not at some time registered during the first summer month. The ground, as might be expected, became very cold, the temperature at 2 feet deep on the 16th being 4° colder, and at 1 foot deep as much as 9° colder than is seasonable. The rainfall has been very remarkable, so far as my records go, and in some respects unprecedented. For instance, during the last eight days rain has fallen to the total depth of 4¾ inches, which is equivalent to a quantity on each square yard of surface in my garden of 22 gallons. Again, on the 13th rain began to fall at 1 3. P.M., and never ceased until 3 A.M. on the 16th. The total measurement for those 61½ hours amounted to nearly 4 inches—equivalent to a watering on each square yard of 18 gallons. The exceptional character of this fall will be better appreciated when I state that the average rainfall for the whole of June is 2¼ inches, and that there have been in Berkhamsted only four other Junes in the last forty seven years when the total fall for that month has exceeded the amount that fell on those three days. Already over 11 gallons of rain-water, or about half the total rainfall, have come through the bare soil gauge; but only about two-thirds of that fall has as yet passed through the gauge on which short grass is growing. But for the singular persistency of the recent rains, the probability is that the percolation through the latter gauge would ere this have entirely ceased until late in the autumn. The past week was an extremely gloomy one. Five days were altogether sunless, while the record of clear sunshine for the other two days, taken together, amounted only to 4¾ hours. The winds remained light. The direction of the wind has been, however, unusual, that is to say, for the last twenty-four days, except for seventy-four hours in all, or say three days, it has been some point between north and east. The amount of moisture in the air in the middle of the day during the week has been about 25 per cent. in excess of the average for the month. *E. M., Berkhamsted, June* 16, 1903.

MARKETS.

COVENT GARDEN, June 18.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, Australian, including Tasmanian, case	10 0	14 0
Apricots, per box	1 0	1 6
Bananas, bunch	8 0	12 0
— loose, dozen	1 0	1 6
Cherries, per box	0 10	2 0
— sieve	6 0	10 0
Figs, per dozen	2 0	6 0
Grapes, Gros Maroc, lb.	1 6	2 0
— Hamburgh, A., per lb.	2 0	3 0
— — B., per lb.	0 10	1 3
— Muscats, A., lb.	3 0	4 0
— — B., per lb.	1 0	1 6
Gooseberries, per sieve	5 0	6 0
Lemons, per case	16 0	20 0
Lychees, packet	1 0	—
Melons, each	1 0	3 0
Nectarines, A., per dozen	12 0	18 0
— B., per doz.	3 0	8 0
Oranges, per case	14 0	18 0
Peaches, A., per dozen	15 0	24 0
— B., per dozen	3 0	8 0
Pines, each	3 0	4 0
Strawberries, A., per lb.	2 6	3 0
— B., per lb.	0 6	0 9

PLANTS IN POTS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Acers, each	2 0	2 6
Adiantums, doz.	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæs, per dozen	9 0	18 0
Aspidistras, per dozen	18 0	36 0
Aucubas, per doz.	4 0	8 0
Calceolarias, per dozen	4 0	6 0
Coleuses, per doz	4 0	5 0
Crassulas, dozen	8 0	12 0
Crotons, per doz.	12 0	24 0
Dracænas, variety, dozen	12 0	48 0
Ericas, per dozen	8 0	18 0
Etoile d'Or, per dozen	12 0	18 0
Euonymus, vars., per dozen	4 0	8 0
Ferns in var., per dozen	4 0	30 0
— Japanese halls, each	1 8	—
Ficus elastica, doz.	9 0	24 0
Fuchsias, p. doz.	4 0	5 0
Heliotrope	4 0	6 0
Herbaceous Perennial Plants in variety, per box	1 0	2 0
Hydrangeas, doz.	8 0	24 0
Ivy-leaved Pelargoniums, dozen	4 0	6 0
Lilium longiflorum, per doz.	8 0	12 0
Lycopodiums, p. dozen	4 0	5 0
Marguerites, doz.	4 0	12 0
Mignonette, doz.	4 0	8 0
Musk, per dozen	2 0	4 0
Orange-trees, each	3 0	7 6
Palms, var., each	3 0	20 0
Pelargoniums — Oak-leaved, scented, doz.	3 0	4 0
pink, per doz.	4 0	8 0
— scarlet, dozen	4 0	6 0
— show, dozen	8 0	12 0
— white, p. dozen	4 0	—
Petunias, p. doz.	4 0	6 0
— in boxes	1 0	1 6
Pteris tremula, dz.	4 0	8 0
— Wimsetti, doz.	4 0	8 0
Pyrethrum coronarium (Double yellow Marguerites)	6 0	10 0
— Single yellow	8 0	10 0
Rose Trees, p. dz.	9 0	18 0
Verbenas, dozen	8 0	10 0

CUT FLOWERS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Azaleas, doz. bun.	2 0	4 0
Callas, per dozen	1 6	3 0
Carnations, bunch	1 0	2 0
Cornflowers, doz. bunches	1 6	2 0
Eucharis	2 0	3 0
Ferns, Asparagus, per bunch	1 0	2 6
— French, per doz. bunches	0 4	0 6
— Maidenhair, doz. bunches	4 0	6 0
Gardenias, p. box	1 6	3 0
Gladiolus, White, per bunch	0 6	1 0
— Blushing Bride, bunch	0 6	1 0
Gypsophila, bun.	0 6	—
Iris, per bunch	0 6	1 6
Ixia, doz. bunches	2 0	3 0
Liliums, White	2 0	4 0
— longiflorum, per bunch	1 6	3 0
Lily of the Valley, p. doz. bunches	9 0	12 0
Lupins, doz. bun.	3 0	4 0
Marguerites, yellow, doz. bunch	1 6	2 0
Mignonette, doz.	2 0	3 0
Orchids: Cattleya, dozen blooms	12 0	15 0
Orchids: Dendrobiums, p. dozen	2 0	3 0
— Odontoglossums, dozen	2 0	4 0
Pæonies, per doz. bunches	4 0	6 0
Pelargoniums, zonal, dozen bunches	4 0	6 0
— White	3 0	6 0
— Pink, Ivy, per doz. bunches	6 0	8 0
Pinks, 12 bunches	2 0	3 0
Poppies, Iceland, p. doz. bunches	1 6	3 0
Pyrethrums, doz. bunches	3 0	5 0
Roses, Mermet	1 6	3 0
— Moss, 12 bun.	6 0	8 0
— various, per bunch	1 0	4 0
— red, p. bunch	1 0	3 0
— white, bunch	1 0	2 0
— pink, bunch	1 6	3 0
Smilax, doz. trails	1 6	2 6
Stephanotis, doz.	1 6	2 0
Stocks, 12 bunches	2 0	4 0
Sweet Peas, per dozen bunches	1 0	4 0
Tuberoses, per dozen blooms	0 3	0 4

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen	1 0	2 0
Asparagus, sprue, per bundle	0 4	0 6
— Foreign	0 9	1 6
— English, per bundle	2 0	3 6
Beans, dwarf, lb.	0 10	1 0
— broad, sieve	3 0	—
— Channel Islands, per lb.	0 10	1 0
Beetroots, per bushel	2 6	3 0
Cabbages, tally	1 0	2 6
Carrots, bag	2 0	3 0
— new, doz.	4 0	5 0
Cauliflowers, per dozen	2 0	4 0
Celery, per dozen bundles	12 0	15 0
Cress, per dozen punnets	1 3	—
Cucumbers, per dozen	2 0	3 3
Endive, per doz.	1 6	2 0
Garlic, per lb.	0 4	—
Horseradish, foreign, p. bunch	1 6	1 9
Leeks, per dozen bunches	0 9	1 0
Lettuces, Cabbage, per dozen	0 6	0 9
Lettuce, Cos, per score	0 6	1 6
Mint, dozen bun.	2 0	—
Mushrooms, house, per lb.	0 6	0 9
Onions, per bag	5 0	5 6
— green, per dozen	1 6	2 6
— picklers, per sieve	3 0	3 6
Parsley, per doz. bunches	1 0	1 6
— sieve	1 0	—
Peas, per flat	2 0	—
— English, per bushel	5 0	7 0
Potatos, per ton	90 0	130 0
— Channel Isles, per cwt.	11 0	12 0
Radishes, per dozen bunches	0 3	1 0
Rhubarb	3 0	3 6
Salad, small, punnets, per doz.	1 3	—
Shallots, per doz. bunches	4 0	—
Spinach, per bushel	2 0	2 6
Tomatos, Channel Islands, per lb.	0 5½	0 6½
— English, new, per 12 lb.	5 8	7 0
Turnips, new, per dozen bunches	4 0	5 0
Vegetable-Marrows, per dozen	6 0	8 0
Watercress, per dozen bunches	0 4	0 6

REMARKS.—Some Mangos from Jamaica fetch 5*s.* per dozen; and Strawberries from Sandwich, in gallons, made 3*s.* 6*d.*; the Strawberries from the Southampton district (Botley), vary considerably, and prices range from 1*s.* 9*d.* to 6*s.* per basket; French Peas coming over in sieves or half bushels fetch 1*s.* 6*d.* to 2*s.*; Rhubarb is still in request; new Shallots are very good samples.

POTATOS.

Old, various samples, 90*s.* to 130*s.* per ton; Cherbourg, 10*s.* 6*d.* to 12*s.* *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

GLASGOW, *June* 17.—The following are the averages of the prices during the past week:—Tomatos, 6*d.* to 1*s.* per lb.; do., Canary, 2*s.* 6*d.* to 4*s.* 6*d.* per box; Apples, Australian and Tasmanian, 12*s.* to 16*s.* do.; Oranges, Valencias, ordinary, 420's, 16*s.* to 18*s.* per box; large 420's, 17*s.* to 19*s.* do.; extra large 420's, 19*s.* to 22*s.* do.; 714's, 23*s.* to 25*s.* do.; Lemons, 6*s.* to 10*s.* per box; and 7*s.* to 14*s.* per case; Grapes, English, 1*s.* to 2*s.* 6*d.* per lb.; Onions, 4*s.* 6*d.* per bag, and 7*s.* per case; Cherries, 4*d.* to 8*d.* per lb.; Dutch Turnips, small hampers, 3*s.*; do. Carrots, 1*s.* 6*d.* per dozen bunches; do. Cauliflowers, 2*s.* per dozen; Gooseberries, for preserving, 14*s.* per ton; English Strawberries sold at 9*d.* to 1*s.* per lb.

LIVERPOOL, *June* 17. — *Vegetable Market.* — Potatos, per cwt., Jersey, 11*s.* 6*d* to 12*s.*; Main Crop, 4*s.* 9*d.* to 5*s.* 6*d.*; Up-to-Date, 4*s.* 3*d.* to 4*s.* 8*d.*; Onions, foreign, 3*s.* 6*d.* to 5*s.* do.; Parsley, 8*d.* to 10*d.* per dozen bunches; Lettuces, 8*d.* to 9*d.* per dozen; Cucumbers, 1*s.* 6*d.* to 3*s.* per dozen; Cabbages, 6*d.* to 1*s.* do. *St. John's.*—Potatos, 1*s.* 2*d.* to 1*s.* 4*d.* per peck; do., new, 1½*d.* to 4*d.* per lb.; Asparagus, 2*s.* per 100; Peas, 6*d.* per lb.; Cucumbers, 3*d.* to 4*d.* each; Apricots, 1*s.* 6*d.* per dozen; Gooseberries, 3*d.* per lb.; Peaches, 3*d.* to 4*d.* each; Cherries, 6*d.* to 8*d.* per lb.; Strawberries, 8*d.* to 1*s.* do.; Grapes, English, 2*s.* 6*d.* to 3*s.* 6*d.* do.; Pines, English, 3*s.* 6*d.* to 6*s.* each; Mushrooms, 1*s.* per lb. *Birkenhead:* — Potatos, 1*s.* 2*d.* to 1*s.* 4*d.* per peck; do., new, 1½*d.* to 4*d.* per lb.; Peas, 3*d.* to 6*d.* do.; Asparagus, 2*s.* to 3*s.* per 100; Cucumbers, 2*d.* to 6*d.* each; Strawberries, 6*d.* to 1*s.* 3*d.* per lb.; Peaches, 4*d.* to 6*d.* each; Cherries, French, 8*d.* to 10*d.* per lb.; Apricots, 1*s.* to 1*s.* 6*d.* per dozen; Gooseberries, 3*d.* to 4*d.* per quart; Grapes, English, 2*s.* to 4*s.* per lb.; Mushrooms, French, 1*s.* to 1*s.* 4*d.* per lb.; Filberts, 8*d.* do.

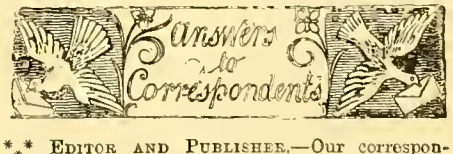
CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending June 13, 1903, and for the corresponding period of 1902, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1902.		1903.		Difference.	
	s.	d.	s.	d.	s.	d.
Wheat	30	11	27	8	— 3	3
Barley	23	8	21	5	— 2	3
Oats	22	8	18	7	— 4	1

TRADE NOTICE.

MESSRS. MORGAN & Co., 8, St. Mary-at-Hill, London, E.C., write to say that Mr. D. Morgan is not now connected with their firm.



*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

BOOKS: *F.* It is not the first complaint we have received relating to a firm of that name. We can only suggest that you should put the matter into the hands of your solicitor.—*E. W. D.* Bentham & Hooker's *Genera Plantarum*, in 3 vols., and in Latin, is the most complete. We do not know your precise requirements, but we imagine Nicholson's *Dictionary of Gardening*, published by Upcott Gill, would

be most useful to you. The book you mention does not give what you want. For fungi, Massee's *British Fungus Flora* in 4 vols.

CARNATION SOUVENIR DE LA MALMAISON DEAD: *Anxious.* The plant has succumbed to attacks of eel-worms at the roots, introduced in the mould used in potting. You had better bake or thoroughly steam the loam that you employ, or you may lose all your plants. If you were to afford the old plants that are as yet not in a very bad state nitrate of soda in the proportion of 2 oz. per gallon of water, it might have the effect of killing the eel-worms, or of rendering the roots distasteful to them. The nitrate should not be applied more often than once a month, and only when the soil is very dry, and water has been previously applied. It is a good plan to heat the loam used in potting over sheets of old corrugated iron. This will leave the loam in a very dry state, and it should, in order to make it moist enough for potting purposes, be placed in sacks, which should be buried in the earth for several months, or be placed in narrow trenches dug in the kitchen garden, and covered with soil for a few weeks or months, according to the season of the year.

CHRYSANTHEMUMS: *A. R. H.* The flowers at this season are out of character. The difference except in colour is trifling. The Carnation leaves are apparently attacked with eel-worm.

CORRECTION: An unfortunate alteration was made in Mr. Tallack's Calendar in our last issue in regard to Hydrangeas, in which he is made to say that all growths "should now be cut back," when he really had stated in his MS. that only *superfluous growths* should be so treated.

FRUITLESS FIG-TREE TWENTY YEARS OLD: *Constant Reader.* Doubtless the roots, after they have been lifted and shortened, need to be confined in a narrow border by means of a wall set in cement, and provided with good drainage. The soil should consist of turfy-loam chiefly, a considerable quantity of lime-rubble, but not much manure, which is better afforded as manure-water whilst the fruits are forming. The lifting and replanting may be carried out in early autumn.

GRAPES: *Subscriber, T. H. S.*, and *W. J. W.* In each case the Grapes are affected with "spot." You can do nothing now but burn all the affected bunches. Next season, try spraying the Vines with Bordeaux Mixture as they begin to push into growth, taking care not to do so after stoning begins.

GRAPE-VINE FOLIAGE HAVING BROWN-COLOURED, SPREADING PATCHES: *Gwyer, Wembley.* The foliage is affected with the so-called "browning," the nature of which is in dispute. At any rate, no harm will be done by your removing the worst-affected leaves, and syringing the remainder occasionally with water in which liver-of-sulphur is dissolved, in the proportion of ½ oz. in 1 gallon of water.

HORTICULTURAL SCHOOLS: *Clifton House.* There is a School of Horticulture for young women at Swanley, Kent; and one at Reading, called the Lady Warwick Hostel.

JAPANESE DWARFED TREES: *Constant Reader.* For methods of treatment, we would direct you to *Gardeners' Chronicle*, May 2, 1903, p. 288.

KENTIA BELMOREANA SPOTTED: *F., Bailliestou.* The spots are caused by a fungus called Graphiola phœnicis. Sponge the leaves thoroughly with soft-soap and water, adding a wineglassful of paraffin to each gallon of water.

LILIUM CANDIDUM: *C. J.* The plants may be affected with a disease. Please send a specimen for our inspection.

MALFORMED FOXGLOVE: *W. B.* Campanulate forms, both single and double flowered, are not uncommon, and they are usually indicative of excessive vigour in the plants that produce them. An example of a Foxglove-flower with a double corolla was given in the *Gardeners' Chronicle* in 1850, July 13, p. 435.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*J. W. M.* Brassavola Digbyana.—*W. B.* 4, Saxifraga Geum dentatum.—*A. M.* 4, Brodiæa ixioides; 5, Allium spharocephalum.—*J. M.* 3, not recognised; 4, Lithospermum purpureo-cœruleum; 6, Lychnis Lagascæ.—*Phyto.* 1, The Birch, Betula alba; 2, Populus tremula, Aspen Poplar; 3, a Willow, probably Salix caprea; 4, Salix pentandra.—*M. B.* The Iris is quite remote from I. cuprea: it is I. missouriensis, or some nearly allied species. *J. G. B.*—*E. A. T.* Near to Dendrobium Bensoniæ xanthinum, the dark spots at the base of the lip being nearly suppressed.—*Cardboard box, no name.* Epidendrum fuscatum, and an indifferent variety of Odontoglossum luteo-purpureum.—*H. T., Kent.* 1, Streptosolen Jamesoni; 2, Tracheliospermum jasminoides syn. Rhyncospermum; 3, Cymbidium aloefolium; 4, Celsia cretica; 5, Peperomia arifolia; 6, Santolina incana (Lavender Cotton).—*W. D.* The specimens are insufficient.—*A. E. M.* 1, Spiræa trilobata; 2, Lithospermum purpureo-cœruleus; 3, Fuchsia procumbens.

"NOTES OF THE SEASON."—The writer under this name in our last issue desires us to substitute in the line "the thriving state of cereal and fruit crops," the word pulse for fruit, otherwise the sense of the sentence would be stultified.

ORCHIS FROM THE ARDENNES: *A. Gaddum.* Fly Orchis, Ophrys muscifera, a native species common in England, very rare in Ireland, not in Scotland. Dry pastures. Man Orchis, a name applied by some to O. mascula, O. Morio, O. latifolia, and O. maculata. It is usually assigned in books to Aceras anthropophora, called Green Man, or Green Man Orchis. Found in Britain, only in the south-eastern counties. Dry pasture.—*Butterfly Orchis, Habenaria bifolia.* In moist pastures and meadows throughout Europe, Russian Asia, &c. Generally distributed over Britain.—*Helleborine, a popular name for species of Epipactis and Cephalanthera: Correspondent.* The hardy Orchids are rather difficult of transplanting and establishing, especially if dug up when in flower, but if you have the tubers you must plant them in suitable soil in moderately open situations, and where the surrounding herbage is not so dense as to smother the plants. A loamy soil made very firm suits most of the species, and if it contain chalk, so much the better. We beg you not to dig up wild Orchids.

PEACH-LEAVES: *Peach.* The leaves are attacked by a fungus, Exoascus deformans, often figured and described in these columns. Pick off and burn the leaves, and next year before the leaves are so fully expanded, spray with liver-of-sulphur, ½ oz. to a gallon of water.

PEACH-LEAVES WITH CIRCULAR BROWN-COLOURED PATCHES ON THEM: *T. P.* The tree is suffering from an attack of the shot-hole fungus, Cercospora circumscissa, which, if abundant, will cause an early fall of the leaves, thus hindering the formation of the shoots, and as a result, lessening the crop of fruits the next year. At once apply ammoniacal solution of carbonate of copper, and repeat at intervals of fourteen days. Recipe for carbonate of copper solution:—Mix the carbonate of copper, 1 oz., and carbonate of ammonia, 5 oz., in a quart of hot water, and when quite dissolved, add 16 quarts of cold water. The solution may be applied to quite young Peach-leaves, as it will not hurt them, as would the Bordeaux Mixture. It is contrary to our rule to reply by post.

ROSE AND OTHER HORTICULTURAL SHOWS: *Colonial*, and *F. M. B.* If you consult a copy of the Almanac issued with the *Gardeners' Chronicle* for January 3 last, you will obtain the dates of most of the important shows to be held this year—all, in fact, that were definitely arranged at the time the Almanac went to press. In our first issue for each month also we publish a list of shows to be held in that month, and in every weekly issue, particulars are given of "Appointments for the Ensuing Week." The exhibition of the National Sweet Pea Society, of which you enquire, will be held in the Earl's Court Exhibition, London, on Wednesday, July 15, being the same day as that of the National Rose Society's (Northern) exhibition at Glasgow.

SOLANUM: *B. L. W.* The bark appears to have assumed a corky character. We suspect that the growth is due to deficient ventilation, so that the plant has been exposed to more heat and moisture than it can utilise.

TOMATO PLANT DISEASED: *W. C.* The plant is affected with the "sleepy" disease often noticed in these columns in recent years. There is no known certain cure. Sometimes a plant will grow out of it and recover. Do not coddle the plants, but afford much air and warmth, and but little aërial moisture, and do not afford water in excessive amount at the root. The sleepy disease is internal, and outward applications are of no use in combating it. Some day we may discover a remedy that will be absorbed by the roots of the plant.

TOMATOS: *Perplexed.* The specimen was quite withered when we received it. We conjecture your plants are attacked with the so-called "sleepy disease." If so, there is no remedy but to burn the plants, turn out the soil, fumigate the house with sulphur, and start afresh.

WEED-KILLER: *W. G.* If you do not consider boiling water and agricultural salt convenient in use, you might scan our advertisement columns, or purchase a weed-killer from a florist. These commercial weed-killers are mostly poisonous, and need care in the using.

WORK IN ROYAL GARDENS: *H. Hastings.* We cannot tell you. Why not apply to Mr. McKellar, the King's gardener.

"WORMS" ON STRAWBERRY FRUITS: *J. F.* The fruits swarm with Julus guttatus, Spotted Millipedes, general feeders on living animal and vegetable substances. They also prey upon slugs, small snails, insects, and their larvæ, pupæ, and earthworms. As you cannot apply nitrate of soda or strong brine, both destructive of Julus, trap the creatures with slices of Mangold Wurzel laid about the rows, and clear these every morning.

COMMUNICATIONS RECEIVED.—H. J. E.—Royal Botanic Society—Morgan Brothers—MacLaren & Sons—E. W. D.—W. C.—E. F. H.—H. J. E.—Sir G. King—Prof. Waugh—A. C. F.—C. H. H. (double spathed Arums are extremely common; scarcely a week passes that we do not receive one or more specimens)—V. M. Gauntlett (many thanks; we will see if the photograph can be reduced).—W. J. T., Jamaica.—H. K.—T. H.—A. Whitelaw.—H. L.—J. R. P. & Sons.—Wild Rose—G. R. M. R.—G. L.—E. J. L.—W. H. Yates.—A. E. Groombridge.—A. C. F.—Expert—T. C.—R. A. R.—E. M.—J. M.—E. C.—H. W. W.—G. W.—R. D. J. W. M.

GARDENING APPOINTMENTS.

MR. ERNEST STOKES, for four and a half years Foreman in the gardens, Eynsham Hall, Witney, as Head Gardener to J. JONES, Esq., Cokethorpe Park, Witney, Oxfordshire.

Mr. R. N. PAGE, at the present time Foreman in the gardens at West Dean Park, and formerly under Mr. Jennings at Ascott, as Head Gardener to C. J. FLETCHER, Esq., Dale Park, Arundel.

Mr. J. T. FLETCHER, for the last fifteen years Gardener at Lynhales, Kington, Herefordshire, as Gardener to G. WHIPPLE, Esq., Riverside, Harrowby, Grantham.

Mr. ADAM KNIGHT, formerly Head Gardener at Millersneuk, Lenzie, N.B., as Head Gardener to Sir WILFRID LAWSON, Bart., Brayton.

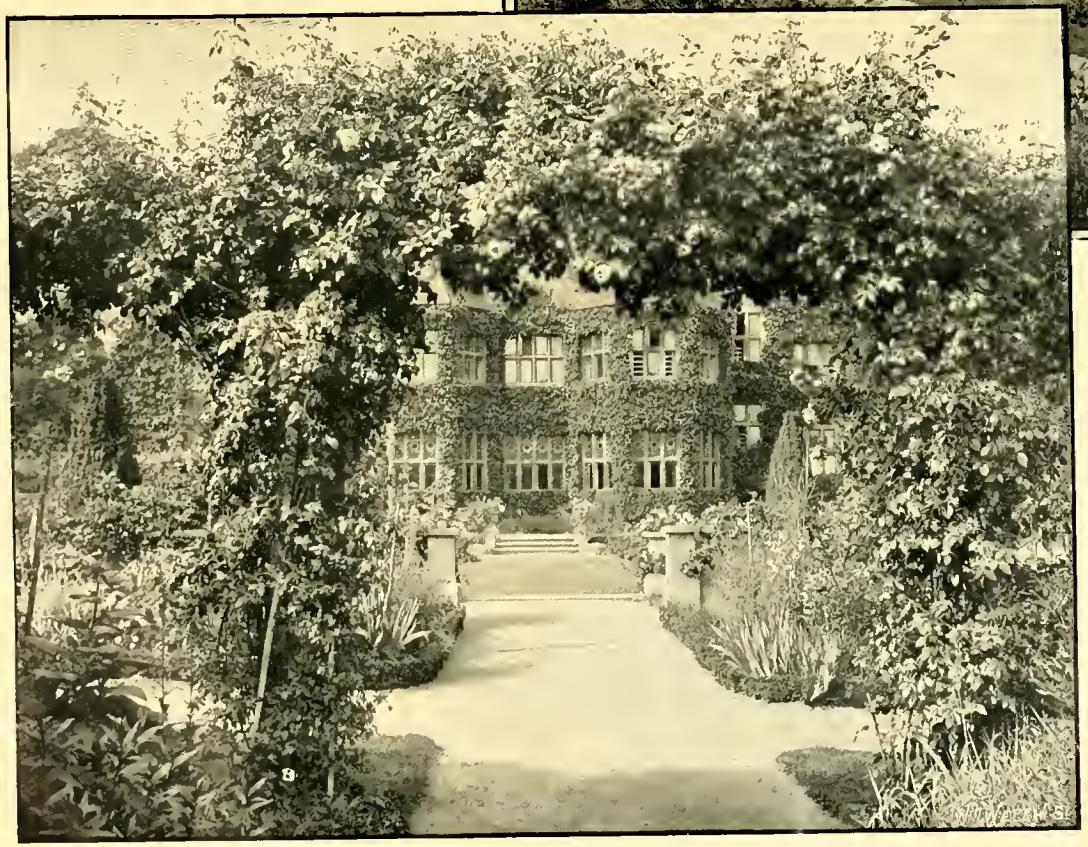
Mr. HERBERT TAYLOR, for the last two years Foreman in the Gardens, Grovelands, Southgate, Middlesex, as Gardener to ERNEST ALEXANDER, Esq., Gogmagog Hills, Cambridge.

MILTON COURT,

NEAR DORKING, SURREY,

THE RESIDENCE OF

L. M. RATE, ESQ.



VIEWS IN THE GROUNDS,

SHOWING THE FLOWER-GARDEN

AND A ROSE-ARCH.

From a photograph

by F. MASON GOOD.

(See description in present issue.)

THE
Gardeners' Chronicle

No. 861.—SATURDAY, JUNE 27, 1903.

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VARIATIONS IN ANIMALS AND PLANTS.*

THE eighty-eighth volume of the *International Scientific Series*, bearing this title, deals with "The Facts of Variation," "The Causes of Variation," and "Variation in its relation to Evolution." The first chapter gives an account of the measurements of variations, as mathematically expressed by several observers of late years. "These differences constitute," observes the author, "what is known as *Variation*, and it is into the facts of this variation, and its importance as the corner-stone of the whole fabric of Evolution, that we shall briefly inquire in the following pages." Dr. Vernon thus follows Darwin, who devotes a section of Chapter II. of the *Origin of Species* to "Individual Differences." As a rule, however, these are not *constant*, and do not give rise to such *degrees of variation* in wild plants which systematists can recognise as necessary for establishing "varieties," and still less "species." Individual differences are thus wanting in the *two essential features* on which classification is based.

Under cultivation, however, they may become "exaggerated," and give rise to "forms," as of Cabbages, Carrots, Radishes, &c., and the numerous colours of the flowers of Sweet Peas, "Shirley Poppies," &c.; many of which have been "fixed" by horticulturists; and it seems to have been this fact which led Darwin to found his theory of Natural Selection, as comparable to man's selection. Nature, however, does not supply the necessary materials among individual differences. Not one of the above-named plants have any *varieties* in the wild state [?]. Dr. Wallace, who disagreed with Darwin in his original essay of 1858, by saying that no inference could be drawn from domestication which would apply to feral states, has also observed of individual differences that "they rarely come within the limits of a species" (*Fortnightly Review*, March, 1895, p. 444). When we examine the statistics of the individual differences among organs of plants or animals, as mathematically expressed by the observers, it appears that they all fall under the well-known "Law of Frequency of Error," i.e., for any part measured of a large number of individuals there is a prevailing maximum in length, size, weight, &c., and the curve falls away on both sides of the maximum.

Such is equally true of shots fired at a target, and it only means that the energy displayed by plants and animals in forming any structure is not an invariable quantity. Such must inevitably be the case where results do not depend, nor are based upon, axioms and postulates, or absolute constancy. Remembering that the object in view is to search for the foundation of variations in organic structures, upon which "Varieties" and "Species" can be based, these mathematical conclusions—interesting as they may be in themselves—supply, in the great majority of cases, no help whatever. I do not yet see that "the keynote of most of the recent work on variation lies in the recognition of the fact that almost all the problems to be solved must be attacked from a numerical standpoint" (p. 3).

For example, the author gives statistics of measurements by Mr. J. A. Allen of a species of squirrel, and adds:—"There was never any constancy, every animal varying in respect of each of the measurements made" (p. 6).

That is the weak point with regard to any and every such character measured, if a systematist is invited to inspect it as being suggested as "varietal" or "specific." It is a *sine quâ non* that it should be *constant*. No individual differences can be depended upon, as a rule, for *constancy* in wild organisms, nor are they, as a rule, of *sufficient amount* to be available for classificatory purposes. Moreover, the importance of *changed conditions of life* is overlooked.

Elaborate calculations have been made which the author puts before us, on the numbers of the several parts of flowers, but the maxima are just what a botanist would anticipate. In fact, I did so, before studying the tables; because, knowing the origin of the "floral whorls," the maxima merely mark off phyllotactical "cycles." The author makes no mention of phyllotaxis; therefore, I can only conclude that he is not aware of the peculiarities of leaf arrangements. Thus, he informs us that Ludwig counted the number of pedicels or "rays" of the umbel of Torilis Anthriscus; and De Vries, the ray florets of Chrysanthemum segetum. In the former, the maxima were 5, 8, 10 (= 2 × 5). In the latter, 13, 21, 26 (= 2 × 13), 34. In the case of the stigmatic rays of Poppies, 13 is the maximum.

Now these numbers do nothing more than indicate the prevailing phyllotactical cycles, corresponding to the "angular divergencies" of the series:—

$\frac{1}{2}, \frac{1}{3}, \frac{2}{5}, \frac{3}{8}, \frac{5}{13}, \frac{8}{21}, \frac{13}{34}$, &c.

One case is especially interesting, viz., that of Chrysanthemum segetum grandiflorum, of which the commonest form had 47 florets, as this number falls within the rare series:—

$\frac{1}{3}, \frac{1}{4}$, &c.....$\frac{13}{47}$, &c.

Although these maxima are readily accounted for by phyllotaxis, the question may be asked, Why has Nature a preference for making complete cycles as "dominant" numbers, so to say?

Again, Dr. Vernon shows that Poppy-heads with a "cycular" number (as 13) are more fertile than with intercycular numbers. Why should this be so? (p. 89). This is a curious fact new to science; but one fails to see *why* such should be the case.

Of course, the prevailing numbers, 5 and 3, in the flowers of Dicotyledons and Monocotyledons respectively, have long been recognised as representing the 2/5 and 1/3 angular divergencies; and the curves for florets of Chrysanthemum and the petals of Primula officinalis with their several maxima are extensions of the above recognised facts. Thus the maxima of the ray-florets of the Ox-eye Daisy are 13, 21, 26 (= 2 × 13), 34; No. 21 far outstripping the others. In the Cowslip the maxima are 3, 5, 8, 10 (= 2 × 5), 13; No. 5 being the greatest.

All this is very interesting; but if the object in view be *variations* for new *varieties*, they lead to nothing. Whenever organs are crowded, their phyllotaxis fluctuates between the cycles of, generally, 8 or 13 to 34, as may be seen in a Pineapple and Fir-cone. Both series, 1/2, 1/3, &c., and 1/3, 1/4, &c., may be found among the leaves of Araucaria imbricata, and several "fractions" are often represented on a single stem of Jerusalem Artichoke.

If, however, the observers are hunting for *true variations*, I am afraid it is all a great waste of labour.

It was thought possible, Dr. Vernon observes, to obtain a "precise criterion of species" in such maxima of variations (really only *differences*), but it does not appear that the amount, if any exists, of *hereditary constancy* has been tested. *Without this, they cannot have any varietal or specific value.* Moreover, the elements chosen for statistical investigations in the plants mentioned, are not usually of the sources of varietal characters, such as the length or breadth of a leaf, the height of a stem, &c. "Nanism" and "Gigantism" are common features, but mere *size* without some important change of *form* is generally of small account. Both are common in cultivation, as in Sweet Peas, &c., but they are only regarded as "forms" of the same species. *George Henslow.*

(*To be continued.*)

* By H. M. Vernon, M.A., M.D., Internat. Sci. Series, vol. 88, 1903. (Kegan, Paul, Trench, Trübner & Co., 1903.)

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT GUNNERSBURY PARK.

In Mr. Leopold de Rothschild's fine gardens at Gunnersbury Park the number of showy Orchids has been steadily increased, although they are not allowed to encroach unduly on the accommodation necessary for other flowering plants. Odontoglossums and Cattleyas are the genera chiefly grown, and with them Mr. G. Reynolds, the gardener, has attained the same satisfactory results as has been the case with other subjects under his charge.

The Odontoglossum-house has for some time been well furnished with fine spikes of flowers, borne chiefly on vigorous plants of Odontoglossum crispum, which constitutes the bulk of the specimens grown. There is great variety in the form and tinting of the flowers, although the best type of the white variety, which is the favourite, predominates. Among them was noted a very singular form, which in general appearance ranks between O. cirrosum and O. crispum, the lip being curiously elongated, and the petals deeply fringed.

In the Cattleya-house there is a goodly number of showy flowers on the plants of Cattleya Mendeli, and a fine lot of autumn-flowering C. labiata is showing well for bloom in their season. The large quantity of Vanda teres, which made such an attractive display at the Temple show, is now out of flower, and the fine V. teres Gunnersbury Park variety is about to expand its flowers. This season has not been a good one for flowering plants, but the Orchids seem better than usual, and they last in flower longer than in brighter seasons.

THE ICELAND POPPY.

This beautiful and simple flower has been much in evidence during the last few weeks. Its bright and lovely colours, and its graceful habit and form, making it a universal favourite. It is to be met with not only in our best West-end establishments, but in all florists shops, on costers' barrows, and almost at every street corner, in immense quantities. Curiosity came over me a few days ago to trace this pretty flower to some of its many sources. I do not mean its natural habitat, but to one amongst many of the gardens where it is grown so extensively for the London and other markets. Reaching one of these establishments, my first introduction to the Poppy was in the packing-shed, where hundreds of large bunches of varied and rich colours of primrose, orange, and white were standing on a long table in jars of water, ready for sending to market. Coming suddenly on this great galaxy of brilliant and dazzling colour was an experience which I shall not soon forget.

The seed of this species is sown early in September in beds in the open quarters in the garden, arranged in 5-feet widths, with an alley between, and the sowing is done very thinly in rows drawn 10 in. apart. The seedlings are thinned in due time to 10 inches apart in the rows. The seeds might be sown in small beds, and the seedlings transplanted into other beds, but the Poppy does not like transplantation, and grows better when sown on the ground it is intended to occupy. Over these quarters of land is built a framework of timber, on which portable glass lights are fixed in the spring. On the outer-sides of these quarters tiffany is fixed for shading, forming with the roof of glass a huge house, in which the Poppies are grown.

It is well known that the Poppy cannot be forced on in the usual way, but the extra sun-heat obtained at a time when natural growth is on the move by means of this temporary structure, suits the requirements of the plant admirably, and in this way flowers are obtained a month or six weeks in advance of those expanding in the open. It was a pretty sight to see this great quarter of these flowers growing, as it were, among a forest of posts and rails (supporting the glass roof), with men and many children picking and bunching the flowers for market with great rapidity and despatch, as on the activity displayed depended the amount of their wages—they being paid at so much per dozen bunches; plenty of the boys in their off, school-time making 3*d.* and more per hour. I think gardeners in private places and even amateurs might with advantage take a lesson from the market grower's practice with this very pretty and useful plant, and plant a few in cold pits or frames, or in such a position that a portable frame could be placed over the bed early in the spring. Coming in, as the Iceland Poppy does, in early summer, at a time when the London season is in full swing, when choice hardy flowers fit for fine floral decorations are scarce, the Iceland Poppy is invaluable. It costs little to grow, is quite hardy, and lasts a fairly long time in a cut state. *O. Thomas.*

FORESTRY.

EXCENTRIC RINGS IN THE STEMS OF TREES.

The phenomenon noticed by your correspondent, "H. J. C.," with regard to the growth of the annual rings in the branches of large trees was first noticed, I believe, by Robert Hartig, and is referred to in his *Pflanzen Physiologie*. He there uses the terms "epinastic," when the greater growth is made on the upper side of the pith; and "hyponastic" when most growth is made below the pith. The former he gives no explanation of, but considers it possible that the specific gravity of the sap may have something to do with the latter, which occurs most frequently in Conifers.

I think Prof. Henslow's theory of "epinastic growth may be sound enough so far as it goes, but does it go far enough? That the extra-deposition of wood in the fork of the branch acts as a tie or support, is quite probable; and I believe it is partly the result of the tension which exists at that point. In all cases which are at all analogous to the one in question, such as leaning trees, or those growing on the edge of cliffs or banks, where the support is on one side only, there must be a much greater tension on the fibres of the upper or supporting side at the point of greatest resistance (that is, at the base of the tree or limb); while there must be a corresponding amount of compression on the opposite side. The effect of these two forces is most felt by the cambium layer during the period of growth. On the one side there will be a stretching or turning force at work on the cells of the dividing cambium layer, which acts as an irritant and stimulus to increased growth, while on the opposite side compression will act as a deterrent to cell expansion, and produce a denser and more compact wood-ring.

But there is also another possible explanation of the greater thickness of the wood-ring on the upper side. Although the cambium layer is practically continuous over the entire surface of the wood in the tree, it is well known that the amount of growth it makes at different parts depends upon the nourishment it receives in the form of elaborated sap. This sap descends from the crown in the bast fibres (sieve-tubes), and its uniform descent is interrupted by any obstacle or injury to the bark. Now branches constitute the most frequent form of obstacle to this sap, especially when they are partly suppressed, or growing at a slower rate than the upper part of the crown, and the descent of the sap is more or less arrested at their axes or junctions with the main stem. This means that the cambium there is better nourished, or receives more sap than the average, while the part immediately below the branch is correspondingly starved. The result of this is, that the increase of stem above the branch is greater, and the increase below it smaller than it would be on a clean or branchless piece of stem. When a large branch is sawn off close to the stem, the saw passes through the region of maximum growth, and it is difficult to say whether the wood formed there properly belongs to the branch or the stem, although the former usually gets the credit of it. That a great deal of it clearly belongs to the stem is evident, when one comes to observe the bases of branches which are practically suppressed, and no longer assist in adding to the growth of the main stem. Then a distinct bulge is formed at the base of the branches on the upper side, and a hollow or groove gradually forms below them, and the stem has much the same appearance as if a thin stream of treacle had been poured down the bole and allowed to set. Beech and Spruce-stems exhibit this form of growth in a marked degree, and clearly prove that the descending sap is arrested at such points, and that the increased width of the wood-ring in branches growing at the normal rate is due to elaborated sap supplied from the stem.

Why Conifers should differ from hardwoods in this respect is not very clear. Gravity, one would think, would operate as much or as little in the one as the other; although the greater specific gravity of resin over ordinary sap may make a difference. Exposure to sunlight may make a considerable difference to the growth of the wood-ring, as I have frequently noticed in the stems of young Conifers, but this could hardly affect growth along the line of the vertical axis, as is the case in most branches, and the irregular growth of stems due to one-sided crown development is quite different from this branch growth. *A. C. Forbes.*

VEGETABLES.

DICKSONS FIRST AND BEST CABBAGE.

One of the best strains of early Cabbage I have seen in this part was at Duxbury Park, near Chorley. The plants were all heart, and cutting had been going on since the early part of the month of May. I thought Early Ellam as grown here was not easily to be beaten, but Dicksons First and Best as seen at Duxbury is superior. Market growers about here will not cut their Manchester Market and other old large-growing sorts for a week or two later.

Dicksons Early Ruby Tomato.

Mr. Parkinson, the gardener at Duxbury Park, speaks highly of this variety, and certainly as grown there with several others it was superior. The plants are growing in 9-inch pots, and gathering had been going on since the middle of last month. Holmes' Supreme, so far as I could see, came next to it. *W. P. R., Preston, June 13.*

PLANT NOTES.

BEGONIA CORALLINA.

For free growth and profuse flowering, this fine Begonia is without a rival for certain purposes, as at Gunnersbury Park, Acton, where it covers one side of the roof of a span-roofed house. Its coral-red flowers are being produced in profusion, and the plant will continue to produce them for some months longer. The other side of the roof is covered with Allamanda Schotti, whose flowers are now beginning to show. Begonia coralina is a great favourite with the gardener, and he uses it effectively to fill hanging baskets and clothe pillars.

FOREIGN CORRESPONDENCE.

A QUINTA IN PORTO.

A "QUINTA" in Portuguese may be said to mean a property or country-house, but in Oporto, or Porto as it is usually called by the natives, the solid roomy houses, surrounded by walled gardens belonging to the well-to-do residents, are also generally termed Quintas.

These gardens are somewhat in the Italian style, often built in terraces to suit the nature of the ground, with stone paved runlets of rushing water, clear tanks and pergolas. One I visited in April contained many interesting plants and trees, of which I enumerate a few. Among the trees were Cercis siliquastrum, the Judas-tree, a beautiful sight, with its pink flowers in little branches on the twigs, no leaves as yet being on the tree; a female Ginkgo biloba (the Maidenhair-tree), some Magnolia trees, which are said to be the largest in Europe; Cinnamomum zeylanicum, the Cinnamon-tree; and C. camphora, the Camphor-tree. There were a number of Camellia-trees of various species, and some Laburnums and Lilacs, the latter not often being found in the gardens of this country. There was a fine Liriodendron Tulipiferum (Tulip-tree), and Ravenala madagascariensis, the Traveller's-tree, which accumulates water in its leaf-bases, and presents a somewhat strange, fan-like appearance. Different kinds of Wattles were in bloom, and also Rosa gigantea of Burma, which has a rambling habit, and was flowering profusely. Wistarias do very well in Oporto; the multijuga kind, which is mauve and white, of which there were many specimens, had panicles of flowers some 3 feet long. Other kinds were presenting glorious masses of bloom. Brugmansia sanguinea, with its large trumpet-shaped flowers, was flowering well; and Alsophila and Dicksonia, Tree-Ferns, seemed thoroughly at home; also the various clumps of Bamboos grouped about the garden. Greenhouses are not required in Oporto, but some sort of shelter is necessary to protect sown seeds in boxes from the heavy rains in the early part of the year. The climate is too hot for Gooseberries, which are hard to grow in Portugal, but Raspberries are often cultivated.

Many bulbs were in flower in the sunniest spots; Iris germanica, I. Susiana, and I. fimbriata; and in less exposed places, where the ground partook of the nature of a wilderness, were Ixias, Sparaxis of various hues, Antholyzas, &c., literally carpeting the ground. I noticed that the Portuguese gardeners never use a spade, but make use of a gigantic square hoe instead, and a large wooden implement shaped like a mattock and fork combined, with three prongs. Both the hoe and the fork are of a much larger size than the fork and spade used in this country. One other feature of a Portuguese garden may be mentioned in conclusion, i.e., the tall Cauliflowers which are so conspicuous everywhere, these often attaining a height of ten feet, and when in flower at a short distance, appearing almost like flowering shrubs. *C. Orfeur.*

FIG. 157.—ODONTOGLOSSUM CRISPUM VAR. GRAIRIANUM.
(See Supplement, May 30, p. i.) (Photograph by Mr. H. J. Chapman.)

SIDE-GRAFTING.

There are various methods of side-grafting, the one mentioned by your correspondent, Mr. Chas. Page (p. 183) being only one. A method of side-grafting which is finding considerable favour in the United States is performed. It is commonly used only on comparatively small stocks, such as do not exceed three-quarters of an inch in diameter, usually smaller. A single cut is made into the stock, tending downward at an acute angle, and having a length of about three-quarters of an inch to 1 inch. The scion is then cut to a smooth edge on the lower end, the stock is bent slightly to the side, thus opening the first slit, and the scion is inserted; the natural spring or elasticity of the stock then pinches the scion in such a manner as to hold it quite firmly. Nevertheless the graft is usually tied with waxed thread or cloth, or else it is tied and waxed, or sometimes simply waxed.

This method of propagation is much employed by some nurserymen, particularly for certain kinds of Plums. Where it is used largely, the work is always performed upon stocks of a single year's growth. The grafting is usually done during the winter, and in the grafting-room; the grafts are then stored until spring, when they are planted out in nursery rows. During this time they have healed to some extent, and a large percentage of them may be expected to grow. It is claimed that a stronger growth and a better union of stock and scion can be secured in this way than in any other. This is true, of course, only of certain kinds of plants.

In a few instances this method of side-grafting has been employed on stocks-in-place in the nursery rows. The earth is usually drawn away from the standing stock, and the scion inserted low down near the surface of the ground, the work being done early in the spring, and the scions being perfectly dormant, being cut in winter and stored for this purpose. There is a good deal of labour connected with this method of grafting in place, but as the stocks are not disturbed, they are able to force a very strong growth in the scion if the graft succeeds. *F. A. Waugh, Massachusetts Agricultural College.*

BOOK NOTICE.

DAS PFLANZENREICH: REGNI VEGETABILIS CONSPECTUS; ORCHIDACEÆ PLEONANDRÆ. Mit Einzelnbildern, in 41 figuren. Von E. Pfitzer. (Wilhelm Engelmann, Leipzig.)

A RECENTLY issued part of the above work is devoted to the Orchidaceous suborder Pleonandræ, more familiarly known as Diandræ, by Prof. E. Pfitzer. The characters of the suborder, tribes, genera, and species are given in Latin, with references to descriptions and figures, and an account of their anatomy, morphology, and geographical distribution in German. The two tribes are here called Apostasiinæ and Cypripedilinæ, the former containing three genera and fourteen species, and the latter four genera and eighty-nine species. The former is a remarkable ancestral group, of which two species (Neuwiedia Lindleyi and N. Griffithii) recently flowered at Kew, but otherwise is unknown in cultivation; the latter contains many of our most popular garden plants, and its characters are discussed in considerable detail, some of the characters being illustrated with woodcuts. Taking the four genera of Cypripedilinæ in the order in which they occur, we find Selenipedilum, with three species, not known in cultivation, Cypripedilum with twenty-eight species, Phragmopedilum with eleven species, and Paphiopedilum with forty-seven species. Cypripedilum is now limited to the hardy or half-hardy species, having convolute leaves, a persistent perianth, and unilocular ovary; and the genus is here divided into three series, Arcuinervia, Retinervia, and Flabellinervia, the former being again divided into four sections, the largest being Eucypripedilum, which includes most of the hardy species known in gardens. Phragmopedilum was formerly included in the following genus, but its distinctness is now admitted, as the trilocular ovary and valvate sepals are markedly different from the unilocular ovary and imbricate sepals of Paphiopedilum. The eleven species are divided into five sections, two of which contain a single species only, the two thus isolated being P. Schlimii and P. caudatum. Paphiopedilum is subdivided into three sub-genera, one of which is again broken up into three sections, and another into eleven; and no less than seven of these are limited to a single species. Thus, Gonatopedilum is limited to P. Rothschildianum, Prenipedilum to P. Stonei, Mystropetalum to P. Parishii, Stictopetalum to P. hirsutissimum, Thyopetalum to P. Druryi, Cymatopetalum to P. Spicerianum, and Ceratopetalum to P. Fairrieanum. It would have been difficult to carry sub-division much further. P. Charlesworthi, by the way, which is difficult to distinguish from P. Spicerianum when out of flower, is placed in a section, called Neuropetalum, with P. exul, P. insigne, P. villosum, and P. dilectum. Its habitat also, which has long been known, is incorrectly given. It is difficult to see why P. dilectum was retained, for it is only a poor form of P. Boxalli, and that is reduced to a variety of P. villosum. In a similar way, seven species of the section Spathopetalum are enumerated, but P. Walterianum is synonymous with P. Appletonianum and P. amabile with P. Bullenianum; while P. venustum belongs to the next section, Blepharopetalum. Conversely, P. Mastersianum, which does belong to the section, is excluded!

A list of nine supposed natural hybrids is given; but two of these are enumerated twice over, while P. Spicerianum and P. purpuratum grow in such totally different habitats that a natural hybrid between them is out of the question. A similar remark applies to P. callosum and P. Bullenianum, and the fact is that P. Appletonianum should have been substituted for the latter. As for the hybrid between P. Hookeræ and P. Dayanum, the original name of P. × Shipwayæ, Rolfe, is entirely omitted, though the reference is given, but is wrongly applied to another and later name. P. × Petri, however, which should have been included, is placed as a variety of P. Dayanum, and its variety Burbidgei is left as a species. Cross references, however, are given which show that the records were not overlooked. Then we find the rare but very distinct Bornean species, P. nigritum, enumerated as a variety of P. barbatum, with a suggestion that it may be a natural hybrid between P. barbatum and P. purpuratum, which, by the way, grows hundreds of miles apart, and neither of them in Borneo.

Artificial hybrids of Phragmopedilum and Paphiopedilum are enumerated at the end of each genus, under one of the two parents, preceded by a number, to which a cross reference is given under the second parent. In the latter genus these numbers run up to 239, with an alphabetical list of names of over 200 others which are either secondary hybrids or of doubtful origin.

There is a list of imperfectly known and excluded species, in which no mention is made of Paphiopedilum cothurnum, P. Socco, and P. epidendricum, Pfitzer, while Cypripedilum epidendricum, Vell., said to be a Catasetum, really belongs to Cyrtopera. *R. A. R.*

FLORISTS' FLOWERS.

ZONAL PELARGONIUMS FOR FLOWERING IN WINTER.

THOSE who wish to have a display of these plants in flower next winter, and have not yet put them into the pots in which they will bloom, should do this at once. If a stock of the best varieties is not to hand, they may still be purchased, but they should be potted-up directly they are received, using a compost of fibrous turf, leaf-mould, and sand, and taking every care to ensure that the soil in each pot will drain itself perfectly. Cultivate the plants in an airy greenhouse until the middle of August, then remove them to a position out-of-doors in full sunshine, where they may be permitted to remain for three weeks. The flower-buds that appear until the beginning of August may be pinched out, but not after that date. In September it will be necessary to house the plants before autumnal rains become frequent, and they should be afforded a span-roofed structure about 9 ft. high in the span, glazed with large panes of the best glass, so that by washing the roof occasionally in autumn and winter there may be the least hindrance possible to the admittance of sunlight. The house should contain sufficient water-pipes to warm the atmosphere without having to overheat them, and by careful ventilation and the employment of fire-heat the air of the house may then be kept in a buoyant condition, free from excessive humidity during even bad weather. When the plants commence to flower, afford them occasional waterings with diluted drainings from the cow-shed, alternating this with weak doses of a safe fertiliser.

The accompanying list of varieties, three of each colour, includes a selection the writer made in November last, from Mrs. Haywood's collection at Woodhatch Lodge, Reigate, and in Messrs. H. Cannell & Sons houses at Swanley. *Scarlet*—Sirdar, Lord Hopetoun, and General French. *Orange*—T. E. Green, A. H. Arderne, and Wordsworth. *Pink*—Mrs. Brown-Potter, Mrs. Williams, and Countess of Buckingham. *Purple*—Lord Roberts, Lord Curzon, and Kendal Barnes. *White*—Snowstorm, Mary Beeton, and Niagara. *Salmon*—Mrs. Chas. Pearson, Mrs. Geo. Cadbury, and Lady Laurier. *Blush Pink*—Lady Roscoe, Dorothy Burrows, and Lady Curzon. Fancy varieties with white centre, Winston Churchill, Mark Twain, and Lady Sarah Wilson. A few others of greater novelty are, Princess of Wales, rosy-pink colour, very free in flowering, blooms 3 inches across; Duke of Norfolk, purple-crimson with scarlet markings, very large size; and Countess of Hopetoun, white, with pink circle around eye. The best double varieties noted were Raspail Improved, scarlet; Miss Ashworth, white; Golden Glory, orange; M. Anatole Roscleur, pink; La Fraicheur, Gustave Lawson, and M. Alf. Erckener, a new one of reddish-salmon colour. *R. H. P.*

RHODODENDRONS IN THE GARDENS OF THE ROYAL BOTANIC SOCIETY.

IN many previous seasons we have afforded our readers some particulars of the Rhododendron displays that Messrs. J. Waterer & Sons, Ltd., of Bagshot Nurseries, Surrey, have made in the month of June in the Botanic Gardens, Regent's Park. On the present occasion, and owing to the courtesy of the Royal Botanic Society, we have an opportunity to illustrate the show now on view (see fig. 158). It will be seen how natural is the method of grouping employed, and to what degree the whole arrangement resembles a well planned Rhododendron garden. The display is made in a dell that is naturally well suited for the purpose, and the whole is covered by a grand marquee. In the centre bed the exquisite variety Pink Pearl, illustrated in a supplement to the *Gardeners' Chronicle*, has been glorious, and the varieties planted around this one constitute the very brightest gems for garden adornment.

The rest of the varieties are disposed in the remaining beds and borders, and afford a wealth of flowers, remarkable for size in truss and bloom, and for brilliance and variation of colour. We could hardly mention more attractive varieties than two which have been named after members of the firm, Gomez Waterer and Michael Waterer, the former a pale coloured flower, in which there is very slight purple colour; and the latter brilliant crimson. The plants trained as standards are perfect specimens, and flower profusely. Nothing could better serve to popularise this grand flowering plant than such an exhibition.

HOME CORRESPONDENCE.

THE WEATHER.—Early on the morning of the 21st inst. we were visited by a frost which very much blackened the leaves of Potatos. The mischief done was somewhat partial, for whilst some open plots escaped without injury, those in low-lying and sheltered situations suffered more severely. These remarks apply also to Scarlet Runners and Kidney Beans. Having no registering thermometer, I cannot give the degrees of frost which did this amount of harm, but I might add that ice was observed on water in the garden. After a long spell of cold east wind, the wind has to-day veered round to the S.W., and the atmosphere is much warmer. *W. Miller, Berkswell, Coventry.*

—— We experienced strong, cold, north-westerly winds during the past fortnight in this part of the country, and on Sunday morning, June 21, 7° of frost were registered, which blackened Potatos in the garden and field; Dahlias, French Beans, and many other tender things also suffered severely, and are partially crippled for the season. *E. Ward, Longford Hall, Manchester.*

SOME THOUGHTS OF THE LATE TEMPLE SHOW.—I trust we have seen the last of the Temple Flower Shows upon the present lines. The site is all that can be desired; the drawback is, that the hands of the Council are fettered by the Benchers. The narrow, stuffy

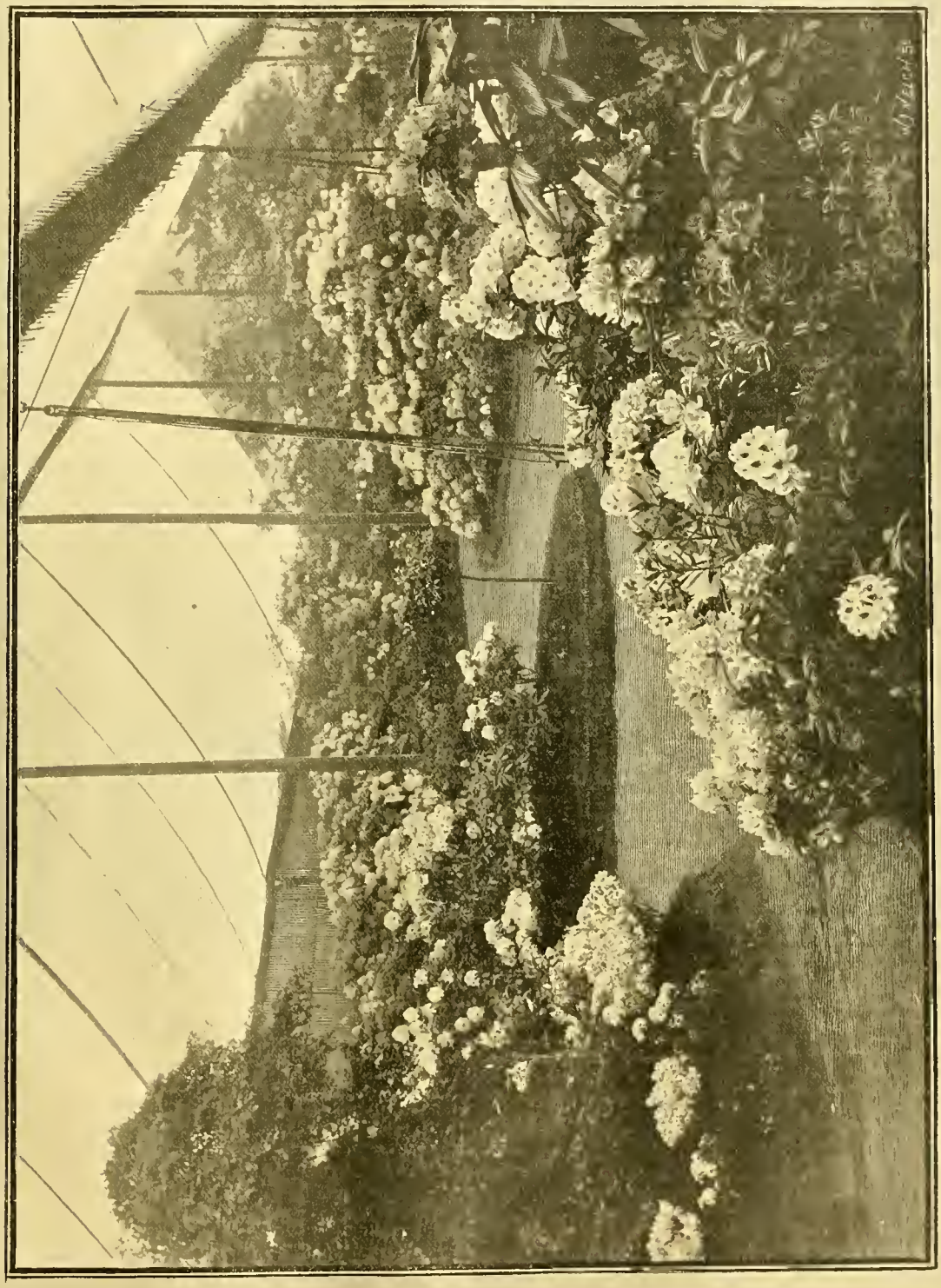


FIG. 158.—RHODODENDRONS EXHIBITED BY MESSRS. JOHN WATERER AND SONS AT REGENT'S PARK. (SEE P. 408.)
(Photograph by J. Gregory, kindly supplied by the Royal Botanic Society.)

tents, and the boarded pathways, put a severe tax upon physical endurance. If the Council were free to utilise the gardens in their own way, much of a highly desirable character might be attempted in the way of change. Then the very sameness of the display year after year is operating to destroy its popularity. The arrangements of this year's Show was a practical counterpart of last year's. One comes to know exactly what things will be shown, by whom, and where they are to be found. It is when an analysis of the exhibits is entered upon that one perceives the defects. There is no defined standard of quality set up; exhibitors appear anxious to crowd as much as they possibly can into a given space, and dividing lines are obliterated. One-third of the hardy plants might have been left at home with advantage, then the good things would have stood a chance to display themselves. Arrangements of alpines on rockery would be far better in the open air; collections of Tulips would have been improved by severe weeding out; boxes of cut Roses, as they are ordinarily shown, were too obtrusive. Such defects might be multiplied; and these evils will go on repeating themselves until there is a drastic change in the schedule of classes. The Temple Show ought to be the occasion when the best should be shown, and novelty of character, combined with good cultivation, be made a much more prominent feature. Until unlimited collections of much second and third-rate stuff are limited to the best and newest, and it is made a *sine quâ non* that each subject shall be staged so as to display itself, and be properly and prominently named—until this is done, it is needless to look for anything in the way of reform. A Temple Show should be something better than a Drill Hall meeting on a magnified scale. *R. Dean.*

ODONTOGLOSSUM CRISPUM. — When is a crispum not a crispum? Being an amateur without any botanical education, I have great respect for those whose botanical training and observation places them in the nosition of acting as our teachers and guides, and should be glad of a reply to the question at the head of this letter if some expert will kindly enlighten me. We are told that pure crispums have undivided crests, which, in the case of supposed luteo-purpureum, natural hybrids are divided. My trouble is, that we have spotless, round, white-flowered crispums with divided, in fact, very palmated crests. We also have very spotted Odontoglossums (I dare not say whether crispums or Wilckeanums), with *un*divided crest; but to add to our troubles, we have in spike a pure white, very round-flowered variety, some of the flowers having divided and some undivided crests! Is this last named a crispum or a Wilckeanum? or a "Wilckeano-crispum"? To the simple-minded amateur it is an undoubted crispum of excellent form, but I feel absolutely certain that if I carefully cut off the crest and sent it to one of our authorities they would unhesitatingly call it a hybrid! *Norman C. Cookson.*

STRAWBERRIES.—It is devoutly to be hoped that somewhere in the United Kingdom better weather conditions prevailed than marked the London district during the earlier portion of the present month. If it be not so, then it is to be feared that the outdoor Strawberry crop is in danger of being ruined. Wet almost beyond all precedent, the rain falling heavily for days and nights together, the soil saturated and cold, as the air is cold also. No wonder the newly-colouring fruits of Strawberries are pale, ill-formed, and flavourless, but the later ones hardly swell at all. Bad as is the case in private gardens, how very disastrous must the season be to growers in a large way. We are, at this moment of writing at the close of the twentieth day of the month, just previous to which an inch of rain has fallen; and during the portion of the month that has passed something near 7 inches of rain has fallen in the Thames valley, with, alas! a prospect of more to come. How very sad is all this, and there is for the Strawberry-grower no hope of bettering the state of things as existing. Not only is there an excess of rain, but there is for June an altogether unwonted absence of sunshine, without which, even under glass, it is difficult to produce decent frnit. With one of the worst frnit seasons we have had to face for many years, the hope that the Strawberry crop may at least have been spared to be remunerative, there seems now to be no hope whatever of any relief to growers coming from that source. It is to be hoped that, in spite of so distressing a season, that growers will not lose heart; that is the chief danger now to be faced. It is not merely the fruit-grower who suffers from such an unpropitious season as is the present, so far. The farmer, too, is in danger of being very hard hit, whilst in all directions trade is suffering severely. We have had wet seasons before, though the present one is creating a record; but we came out of them in time to finer and warmer ones. Still, we need just now philosophy and patience. *A. D.*

THE UNPRECEDENTED RAINSTORM. — The following in a record of the rainfall measured in my garden at Isleworth, Middlesex:—

	Max. day temp.	Rainfall.	
June 10 ...	60° ...	1·65 ...	Rained nearly all day
,, 11 ...	55 ...	·24 ...	,, incessantly
,, 12 ...	57		
,, 13 ...	59 ...	1·60 ...	,, ,, after 11·45 A.M.
,, 14 ...	51½ ...	1·40 ...	,, ,,
,, 15 ...	51 ...	·86 ...	,, ,,
,, 16 ...	59 ...	·76 ...	,, in two thunderstorms
For the week	56° ...	6·51 (inches)	

This period is remarkable, not only for a rainfall unprecedented in any English records that I have seen, but also on account of the great fall in day temperature. The average day maximum for the week was only 56°, which is the average temperature for the last week in October, and is no less than 15° below the average for June. There were two periods of practically incessant rain, the first lasting for about twenty hours, and giving 1·89 inch; and the second lasting about sixty hours, and giving 3·86 inches. During the week it rained for a great part of six days, and almost incessantly upon four of them. The rainstorm without-a-break yielding 3·86 inches is by no means a record for England. For instance, in Leeds in the middle of October, 1892, 5 inches of rain fell in fifty hours. But the gross rainfall for one week seems to be quite unique. Here the month of June has also broken all records for gross rainfall for any month of any year, the first nineteen days having given us 8 inches of rain. A distinct earth tremor occurred about 2·30 A.M. on the morning of June 14; this being nearly the middle of the period of the meteorological disturbance. I will send you later on the records for the whole of June, 1903. Much damage has resulted in the garden, not so much directly traceable to the absolute rainfall as to the constant dampness and cold in combination therewith, and to the complete absence of sunshine. We never saw the sun for one complete week. All Phanerogams have suffered to some extent. The Strawberries are, I fear, almost ruined as a crop, and the flower garden is a scene of desolation. Many Cryptogams seem to have revelled in these conditions; the Conifers also have not looked so clean and healthy for many years. The soil in my garden is remarkably dry, and well drained, but it is grievous to think of the disasters which must have overtaken many gardens on clay soils, or subject to floods. No doubt, we shall presently record some benefits from this storm. The destruction of insect-life must have been immense. *A. Worsley, Isleworth, June* 19.

ALYSSUM PYRENAICUM.—On p. 386 this plant is mentioned as having become rare in cultivation in England. I venture to hope that those who still have it will take care of it, as I believe it has become very rare in its native home. I recollect the late M. Bordère, of Gedre, telling me nearly twenty years ago that he knew only one place where it survived, and this was on perpendicular and inaccessible rocks, where botanists, unable to reach it, were in the habit of shooting down specimens for their herbariums with shot-guns. For many years I have never been without it in my garden, but being short-lived and not conspicuous, it might easily be overlooked and lost. It has the habit and look rather of an Iberis than an Alyssum. A few good seeds may generally be found on each plant if looked for in August, and they are not difficult to rear into plants. *C. Wolley Dod, Edge Hall, Malpas.*

EREMURUS WAREI has stood the extremely ungenial weather we had in April and June better than any other species, and has the great advantage over the other Eremuri which I have grown in coming up much later, so that its leaves are not injured by the frost, hail, and rain of early spring, and its flower-spikes are not frozen, as so many of E. Elwesianus and E. himalaicus were this year and last. Its leaves are very distinct, but the flowers, except in colour, are not very different from those of robustus. By using this as the female parent I hope that a race of Eremuri requiring no spring protection may be acquired. *H. J. Elwes, Colesbourne.*

PRIMULA SIKKIMENSIS.—Having grown this for nearly thirty years, I am much astonished to see Mr. Recordon's statement that it is unknown to cultivators, and still more so that it requires a very sunny position. I should have said that there was no plant which feared sun (at least in a dry soil) more than P. sikkimensis. In its own country it is continually bathed in mist and rain, whilst in England I have seen the leaves flag in a few hours in the sun, and never saw it look better than it does now in a border under a high wall facing north, where it has hardly seen the sun since it came up in May. *H. J. Elwes, Colesbourne.*

POA ANNUA. — The value of P. annua as a town lawn-grass cannot be over estimated. During the time I have been in charge of the public gardens in Shoreditch, which locality is about the worst possible for vegetation on account of the congested surroundings and adverse atmospheric conditions, I have found that this grass is practically the only one that survives the winter. At the time of the formation of new grounds here, about four years ago, the intended grass areas were partly laid with turf and partly sown with good town grass mixtures obtained from various reliable sources, and although a good sward resulted and lasted in good condition up to January, by the following spring not a vestige of grass remained; these trials were repeated with similar results. The lawns in a neighbouring old established square, however, withstood the winters without the slightest sign of decay, and always presented a bright and refreshing appearance. On examination I found them to be composed of P. annua entirely, and since I have introduced some of this variety into the new grounds, most encouraging results have accrued. It may be interesting to know that in March, 1901, an order was placed with a leading firm of seedsmen in the suburbs, for a bushel and a half of P. annua, when a reply was received stating that the quantity of seed required could not be procured in Europe, it being a very scarce seed and worth 10s. per lb. The supply must have increased since that date, if one is able to purchase it at 6*d.* per lb., as your correspondent Mr. W. Watson states. I, in common with others, would be glad of information regarding those firms who supply this seed wholesale at that price. *A. E. Groombridge.*

THE TEMPLE ROSE SHOW.—The season of the year at which we have now arrived is one full of interest to all lovers of the Rose. They are looking to the fulfilment of their hopes and expectations; they want to see what position the new Roses which have been announced for the year are to occupy, and whether too much praise has been given to them, or whether they will have to come down from the lofty pedestal on which they have been raised. We have heard a good deal of the improvement of the method of exhibiting Roses, we have heard it discussed whether a more natural way of setting them up should not be adopted; we have been told that there is room for new races of Roses which the skill of the hybridiser is to produce for us. But all these subjects, and indeed any other connected with the Rose, sink into insignificance compared with the one absorbing topic of the success of the Temple Rose Show, which is again to be held by the kind consent of the Treasurer and Benchers in the gardens of the Inner Temple. Looking back upon last

year, I recollect how our expectations were disappointed by the dangerous illness of His Majesty the King, which interfered with everything of the kind, but we are now looking forward with hope to the exhibition which will take place in the course of a very few days. Now there is such a thing known as *esprit de corps*, and I think this is an occasion on which that spirit ought to be exercised by every member of the National Rose Society. The work which the show entails upon its officers, who are all honorary, is no light one, and their anxiety that it should be a success is very great. The Society has endeavoured to meet all the rational requirements of its members: it has inaugurated new classes for garden Roses; and for Roses to be shown in a more ornamental way than the stereotyped way long known to us, but which, though so much abused by some purists, is still I think the one best adapted to show forth the beauty of the Rose. The elaborately prepared schedule, which has cost the committee so much anxious thought, will give all an opportunity for deciding for themselves on these and other points. I would urge, therefore, all our members to make the show known as widely as possible, and to induce as many of their friends as they can to visit it. Let them not allow other engagements to interfere with them; let them consider, as a true soldier does, that the success of the day depends on their individual efforts. See what the energy and devotion of the Secretary and officers of the Royal Horticultural Society have accomplished for their Temple Show, and determine each one of you that you will do your level best to make the Temple Rose Show as great a success. I hope that I shall hear when it is over that the expectations of all its members have been fulfilled, and that they have heartily rallied to the old standard. *Wild Rose.*

DAMAGE BY HAIL AT ENGLEFIELD GREEN.—A terrific hailstorm which broke over this district on the 16th inst. between 6 and 7 P.M. committed great havoc in the gardens and woods. The stones were, in many instances, as large as Hazel-nuts, and lay about in small heaps two hours later. All tender plants were stripped of their foliage; and of Begonias, Iresines, Coleuses, there are only the stems left. The ground underneath the trees is covered with leaves, as in autumn. I am sending a few specimens, thinking they would be of interest to you. *George Lane, gr., Highfield, Englefield Green.* [The leaves sent fully bore out the statements of our correspondent. ED.]

SOUVENIR DE LA MALMAISON CARNATIONS.—As there have been several notes lately in the *Gardeners' Chronicle* on specimen plants of this type of Carnation, I am sending you a photograph of one of our plants that has been grown by a layer. It is four years old, and measures 4 feet across, and is about 3 feet in height. The variety is Marchioness of Londonderry, and the plant has been disbudded. I also send you a bloom and a growth. The "Malmaisons" here are grown in a compost of two parts fibry loam (with the fine particles sifted out), one part peat and wood-ashes, and the remaining part consisting of dry horse-dung and charcoal, not broken too fine, and coarse silver sand; leaf-soil is sometimes used in place of peat with equal results. Many complain of "Malmaisons" growing badly in the second and third years. I believe the cause is often through the plants receiving insufficient water at the roots during the winter months, and in the growing season they are not afforded the liberal doses of liquid-manure they require. Rain-water should always be used, and should never be applied in driblets. Plants whose roots are kept too wet or too dry never flourish. Here we have large specimen-plants five and six years old in perfect health, as the enclosed growth will prove, that have been freely fed every season when making active growth, and the pots full of roots. *John Fleming, Wexham Park, Slough.* [The photograph shows a splendid specimen, but we feel it to be unnecessary to reproduce it, as a similar specimen of the blush coloured variety from the Dover House collection was illustrated in these pages on July 2, 1898, p. 57. The growth sent by Mr. Fleming, is robust, and indicative of perfect health. ED.]

HYBRID PHAIUS AND CALANTHES.

[*See Supplementary Illustration.*]

HYBRID PHAIUS.

THE supplementary illustration of "Phaius at Oakwood" is reproduced from a photograph showing a portion of the Phaius-house at Oakwood, taken a few days before the group of plants were shown at the Drill Hall in the spring. They comprise the so-called "tuberculosus" section of hybrid Phaius, being derived from the influence of P. simulans, better known in gardens as P. tuberculosus, as one of the parents. I often hear of difficulties experienced in the cultivation of this section of hybrid Phaius, but no such difficulties have been experienced here. There is scarcely a garden in this neighbourhood having the accommodation of a plant-stove in which these hybrids have not been successfully cultivated, and this fact is sufficient to show that no particular skill is necessary for their cultivation. When successfully grown, there is no genus of Orchids of more service to the gardener, who has to produce plants for decorative purposes during the early spring months. We have had during last year, and the season just passed, most of our largest plants in the drawing-room for as much as six and eight weeks without any apparent injury, in fact the rest afforded immediately the flowers expand

FIG. 159.—HYBRIDS FROM PHAIUS HUMBLOTI, RAISED IN THE GARDENS OF NORMAN C. COOKSON, ESQ.
1, Phœbe; 2, Chapmani ×; 3, Oakwoodensis; 4, Ruby; 5, Chapmani superbus; 6, Cooksoniæ ×.
(Photograph by Mr. H. J. Chapman.)

seems to be amply provided for by their removal to cooler conditions. I would mention that gas is not used in the house for lighting purposes, so there is no injury to anticipate in that respect. Where a conservatory has to be kept gay at the spring season, the claims of hybrid Phaius cannot be too strongly advocated. The plants are repotted immediately after they have passed out of flower; the compost consisting of equal portions of fibrous loam, brown fibrous peat, and leaf soil, to which a liberal sprinkling of sphagnum-moss and rough sand is added. The compost is made very firm about the roots, and the surface of the pots is covered with a layer of chopped sphagnum. Water is carefully applied until the roots get well established in the pots, and about the same conditions are required as those found to suit the deciduous section of Calanthes. The temperature in which the plants are grown is similar to that of an ordinary plant-stove. The stock is increased by splitting the rhizome asunder between the pseudo-bulbs. They may be potted-up with the old plant, where they will produce young growths in due course, and will be ready for repotting at the proper potting-season, when they may be removed, if not required to produce a larger specimen plant. By division, and keeping the plants together in the pot, from eight to fourteen spikes of flowers are obtained on the larger plants, which is by far the most desirable form from a cultivator's point of view. The use of leaf-soil is strongly advocated for the successful culture of this section of Phaius. I tried it side by side with the ordinary compost last year; and if there is any difference, I give the preference to the more substantial compost.

The two best hybrids of this section at present in commerce are P. × Cooksoni and P. × Norman, both raised at Oakwood. P. × Clive and P. × Harold will be more beautiful, and equally useful, when procurable in quantities.

I must not close without mentioning the hybrids not yet in commerce, that are now in flower here, derived from the influence of P. Humbloti as one of its parents (see fig. 159). They include P. × Cooksoniæ, P. Phœbe in its varied characters, P. × Oakwoodiensis, P. Ruby, and the two recently-flowered P. × Chapmani and P. × C. superbus. These are most easily cultivated, and require the conditions of the intermediate-house; in potting requirements, the same as above-mentioned for the other section. No plants of the Humbloti hybrids have yet been distributed, but I am sure they will lay claim to great consideration when their qualities become known.

HYBRID CALANTHES.

[*See Supplementary Illustration.*]

The intercrossing of Calanthes was one of the earliest branches of Orchid hybridisation to attract Mr. Cookson's attention, and the success obtained from the batch of seedlings, which produced C. × Alexandri and C. × Cooksoni (C. × Veitchi ♂, C. vestita ♀), from the same pod of seed, and the fact of both plants gaining First-class Certificates on the same day (Oct. 27, 1885), was sufficient to stimulate a much less energetic enthusiast than Mr. Cookson to further experiments; and there can be no doubt the foundation of successive triumphs, for which the collection has long been renowned, was laid, with the advent of the above-mentioned hybrids, both of which are included in the photographic illustration in a Supplementary plate. The whole of the plants shown in the photograph are hybrids raised at Oakwood. The larger-growing kinds, such as C. × William Murray, C. × Bryan, C. × splendens, C. × Harold, and C. × Cooksoni, are among the most useful and beautiful of the hybrid Calanthes. Free in habit of growth, of good constitution, and producing long racemes of flowers in the depth of winter, they are exceedingly useful for cut flower work, especially for dinner-table decorations. The shorter-growing kinds, such as C. × Kenneth, C. × Alexandri, C. × Clive, C. × triumphans, C. × rubro-oculata, the lovely rose-tinted C. × Phœbe, C. × Sibyl (pure white), and C. × Oakwood Ruby, the darkest of all; the two last-named derived from the same pod of seed. These, combined with the quantity of striking unnamed hybrids, cannot be overlooked, and will be appreciated as their qualities become better known. The plants are grown under the usual conditions, of which we have had instructive practical notes from various prominent gardeners in issues of the *Gardeners' Chronicle* during the early months of the year.

Like many other prominent Calanthe cultivators, we are considerably troubled with the spotting of the foliage; and sometimes the flower-scapes are also rendered practically useless by the unsightly appearance they present. I had a strong suspicion during the winter that it was brought about by attacks of fungus, but I have reason to believe the trouble is caused at a much earlier period, and that the fungoid attack is only of a secondary character. The foliage of the plants is remarkably thin in texture, and it is probable that the damage which ultimately develops into the unsightly spot, is caused in a very early stage of growth, before the leaf is really unfolded. I have recently submitted to Mr. Bidgood some portions of young leaves of C. × Veitchi, on which there were at the time very slight indications of spotting. Mr. Bidgood reports that he could find no trace of fungus, but that there was a broken hair in the centre of every spot, showing that in some way the tissues of the epidermis had become broken, thus causing a slight discoloration of the foliage at first, which, as decay set in, cansed the spots to spread and produce the black spots as indicated above. If such is the case, cultivators have but a sorry chance of hoping to overcome the difficulty, and I am afraid little prospect of ever being rid of the unsightly appearance the plants present towards the period when the plants reach maturity of growth. Mr. Bidgood has promised to investigate the matter thoroughly, and I am sure readers of the *Gardeners' Chronicle* will welcome his report, and I am sure benefit by any suggestions he may offer, in the endeavour to overcome the difficulty. *H. J. Chapman.*

The Week's Work.

THE KITCHEN GARDEN.

By JOHN FLEMING, Gardener to Sir C. PIGOTT, Bart., Wexham Park, Slough.

Spinach.—Make good sowings on well prepared ground situated in a cool part of the garden, otherwise it will be difficult to obtain good Spinach during July and August in ordinary years. Thin the plants of earlier sowings to a distance of 6 inches apart before the plants become drawn, for if Spinach has not space for its foliage to spread around from the first, the plant never makes fine growth. Let the ground be often stirred between the rows, and apply a slight dressing of nitrate of soda, or artificial guano, or pigeon's dung in a decayed state, in showery weather.

Shallots early planted are now mature, and may be pulled, and dried in the sun, protecting them from rain, and turning them occasionally.

Onions.—Unless very large bulbs are wanted, the main crop should not be severely thinned. Such as were raised under glass and planted-out early in the season, should receive frequent sprinkling of fresh soot, wood ashes, and quick-lime. Observe the entire Onion crop closely for traces of mildew. This injurious fungus usually appears in one place only at the first, but it soon spreads over a large area if steps be not taken forthwith to check its growth. The first thing to be done is to remove infested bulbs and burn them, and sprinkle the plants thoroughly with lime and black sulphur.

Peas.—The latest sowings of these plants should be well thinned, and afterwards staked. Stir the soil at frequent intervals, and afford a thick mulch along the rows. Apply black sulphur to ward off attacks of mildew.

Carrots.—Make a sowing of the Early Horn or some similar variety, and keep the hoes going between the rows of the main crops. In the event of the Carrot-fly being troublesome, pull up and burn all infested plants, and apply a thin dressing between the rows of wood-ashes, with which paraffin has been mixed at the rate of one quart to one bushel of the latter.

THE ORCHID HOUSES.

By H. ALEXANDER, Orchid Cultivator to Capt. G. L. HOLFORD, Westonbirt, Tetbury

Cattleyas.—The following species and hybrids, viz., C. Mendeli, C. Mossiæ, C. Skinneri, C. intermedia, C. Lawrenceana, C. Laure-Mossiæ, and C. Wm. Murray, having ceased to flower, let the condition of the plants be ascertained. Repotting or top-dressing should be carried out before the roots or growths have advanced much, otherwise injury to the plants will result. Large unsightly plants, and those growing in soured material are the better for being broken up, and for the removal of all useless pseudo-bulbs before the plants are again made up into symmetrical specimens, and these remade up plants should be put into pots as small as will just accommodate them for one year. Plants similarly treated last year may be shifted into pots one size larger. The compost advised in a former calendar should be used. After repotting put the plants in growing quarters, and shade them rather more heavily than usual for a few weeks. Apply water very sparingly, the roots taking readily to materials in a rather dry state; much dampness leads to the certain loss of roots, and may be of the plant. Damp frequently the sides of the pots and the staging, and spray the plants overhead when the weather is fine, but do not afford much water direct to the plants till the roots are numerous and strong.

Lælia purpurata, and the hybrids, L.-C. Aphrodite, L.-C. Canhamiana, L.-C. Hyeana, L.-C. Fascinator, and others, now showing signs of renewed activity, may be potted or surfaced. These hybrids, like their parent, L. purpurata, root freely, and consequently require large pots, and a roughish, open kind of compost. This admits of much water being afforded when the plants demand it during the period of active growth. For some time longer, only sufficient water should be applied to keep the potting materials merely moist till growth is well advanced.

PLANTS UNDER GLASS.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Camellias.—Plants in pots or tubs, the growth of which is well advanced, should be put in a warm sheltered corner, and not in a too open situation out-of-doors. The soil in the tubs, &c., will get dry quicker than under glass, and they should be examined two or three times daily. If any of the plants will not be repotted this season, a sprinkling of Standen's manure once a week, and well watered in, will keep them in good health. Camellias should be heavily sponged about 5 P.M. in hot weather. The Camellia-house proper, where Camellias are planted in borders, should be well syringed every morning before 8 A.M., affording full ventilation day and night, now that growth is well advanced, and do not be misled as to the state of the border because it appears moist on the surface, for the soil may be dry below. Afford water copiously when it is required, and sometimes clear, much-diluted soot-water, which is also good for syringing the foliage.

Azaleas.—As these plants finish their growth, they should be stood on the north side of a wall, with pieces of slate or a thin layer of coal-ashes beneath the pots. Afford similar treatment to that advised for the Camellia. Should thrips infest the plants, fumigate them twice before putting them out-of-doors; or lay the plants on their sides and syringe the foliage with "Abol," or Quassia Extract. Late flowering varieties may be repotted and kept growing for another

month, when they may be placed with the others. Any of the mollis Azaleas which have been forced will be better for a year's rest, and should be planted out in a border, a quantity of leaf-soil or peat being used in the planting. These plants may be potted in the autumn of 1904.

Calceolarias.—In the first and last weeks in July sow seeds in shallow, clean, and carefully drained pans, in a compost consisting of equal parts loam and leaf-soil, passed through a ¼-inch meshed sieve, pressed fairly firm, and afforded water with a fine rose-can a few hours before sowing the seed. The seeds should be sown evenly and be barely covered, a mere sprinkling of silver-sand sufficing. Place the pans under a hand-light or small frame on the north side of a wall, and keep the soil closely shaded till the seeds germinate, then admit air by degrees and afford a thin shade if the sun reaches them. Sprinkle them overhead daily.

Miscellaneous.—There are many plants grown for the decoration of the stove and intermediate house during early winter, that may with safety be placed in cold frames for the next eight or ten weeks, if they are well established. Close such structures at 3.30 P.M., lightly syringing the plants; and shade them in bright weather from 9.30 A.M. till closing time. The undermentioned respond to the above treatment:—Plumbago rosea, Eranthemum pulchellum, Centrapogon Lucyanus, Reinwardtia trigyna, Centradenia rosea, Euphorbia jacquiniæflora, Poinsettia pulcherrima, and Begonia Gloire de Lorraine. Libonias we grow outside from this date, along with Coronilla glauca, and the Genistas, the forwardest plants of which may be put outside from now, and be daily syringed in bright weather, working the syringe well underneath the foliage, or spiders are apt to get a footing.

THE FLOWER GARDEN.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Roses.—Although at Shipley we have not suffered from the excessive rainfall of which so much is heard in the southern parts of the country, the weather, especially at night, has been very cold, and in spite of the early start made by almost all kinds of plants in the open, most of them are at this date in a very backward state, Roses more especially, and if they are to be brought up-to-date for the various Rose shows, the plants will need stimulating. For this purpose a dressing of Peruvian Guano will be helpful, pointing over the soil with a digging-fork; and where the rainfall has been light, washing in the manure with clear water. Disbudding should likewise be carried out, saving if practicable the centre or crown bud on each shoot, but if any of these are deformed they should be pinched off, and one selected to take the lead lower down the shoot. The cold weather does not appear to have affected insect life much, and aphides certainly abound. These do most harm when growth is slow, and their clearance this year should not be neglected. The side shoots on Briar Stocks should be rubbed off, three of the strongest and best placed shoots at the top being reserved to carry the buds.

Narcissi.—Daffodils and other forms which it is thought prudent to lift, the leaves of which are now mature, may be dug up; or with the soil in a very moist condition, the first accession of warmth will induce new root growth, which is bad for the future growth of the bulbs. Some gardeners place the bulbs in store for a month or two, but I am unable to see any use in so doing, and I prefer to replant forthwith, after sizing the bulbs. When planted together in beds, I prefer to throw out the soil to a given depth, dig in manure, covering this with soil several inches thick, so as to have it out of reach of the bulbs; making the whole firm by trampling it, and setting out the bulbs firmly all over the bottom, and so that they will be buried to the depth of 6 inches when the top soil is returned over them. In the case of the double-flowered Poet's or "Gardenia-flowered" Narcissus, I prefer to plant even deeper, as I am of the opinion that fewer blind flowers appear on bulbs deeply planted.

Crown Imperials.—If these are to be lifted and divided, there is no period so safe as that just after growth is finished. Failures are generally found when this, the proper planting season, has been allowed to slip by. Crocuses too may be lifed at this date, although in their case a little licence may be given if necessary.

Sundries.—Lavender cuttings or slips may be inserted in sandy soil, on an open border or under hand-glasses. Lithospermum prostratum may be propagated by slips of the side growths put-in, in very sandy soil under hand-glasses; this lovely plant should be raised annually, the old plants being very liable to die off. Most other semi-shrubby rockery plants, such as alpine Phloxes, &c., may be propagated at this date, and in the same manner; and any of those known as "miffy" subjects should be tried. Arabis should be cut back carefully, and prevented from encroaching on smaller plants, as there will yet be plenty of time to get strong back breaks that will flower well next spring. The same remarks apply to the Aubrietias, though these are flowering late this year. Beds of Lily of the Valley should receive copious supplies of manure-water.

FRUITS UNDER GLASS.

By T. H. C.

Strawberries.—The pots being now packed with roots, much care will be necessary in affording water, so that they should not lack moisture at the root. Afford weak liquid-manure to plants swelling off their fruit, and ply the syringe freely, in order to keep red-spider under. The old plants, if planted out after fruiting, will produce a crop of fruit next summer.

Strawberry Runners.—It is important that an early start be made with the layering of Strawberries for the first forcing, beginning the operation as soon as runners are obtainable. The best runners are those from young plants put out early last autumn in well-prepared ground, mulched with farmyard manure, which have had the flower-stems removed. Procure clean 3-inch pots, which fill with a compost consisting of good loam two parts, leaf-mould one part, and spent Mushroom-bed manure one part. Plunge the pots to the number required between every alternate row of plants, and as low as the rims, and place a layer in the centre of each pot, making it fast with a small peg or bit of stone. Keep the soil in the pots moist, and when the runner is rooted, detach it from the parent plant, and place in the fruiting pot.

Succession Peach-houses.—In order to secure well-coloured and good flavoured fruit, expose it as much as possible to the sun by putting aside the surrounding foliage, and, if necessary, elevate the fruits above the latter. When ripening has begun, cease to syringe the trees, and afford air night and day, more or less, according to the state of the weather, and keep a less humid atmosphere. Look over the trees daily, gathering such fruits as are ripe, and stretch a soft net or piece of tiffany beneath the trees so as to catch falling fruits. Later Peach-houses may have a night temperature of 60° to 65°, and 10° to 15° more by day, with ample ventilation; syringing the foliage thrice daily, and maintain a moist atmosphere by the usual means. Complete the thinning of the fruit as soon as stoning has taken place, and tie-in the shoots to the trellis wires without overcrowding them. Apply liquid-manure to trees requiring such assistance, but afford clear water only to young trees, or any that are growing strongly.

Figs.—The earliest trees are now swelling off a second crop of fruits, which if very numerous should be severely thinned. Copious supplies of water often afforded are necessary for trees growing in pots or confined in small restricted borders, and an abundance of liquid-manure for aged trees or those carrying heavy crops of fruit. Ply the syringe morning and afternoon at all stages of growth, except when the fruits are ripening, at which time a dry atmosphere is desirable. Afford a warmth at night of 60° to 65°, and at closing time the temperature may be allowed to rise to 85° or 90°, with sunheat and much moisture in the atmosphere.

THE HARDY FRUIT GARDEN.

By CHAS. PAGE, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Pear and Plum.—These trees in these gardens are making very vigorous growth, owing doubtless to the light crops of fruit that they are carrying and the heavy rainfall. Many practitioners put off the pinching of the strong shoots till August, but this year it will be prudent to undertake the work forthwith. First let all the shoots, not required for extension, be removed. Experience teaches us that it is better to pinch back a shoot twice or thrice during the season, as the very strong shoots, which may be unduly taking the lead, can be best checked by that means, and an even flow of sap to all parts of the tree secured. The shoots should be pinched to a length of 5 inches, long enough to prevent the buds at the bases from starting into growth. These shoots may be cut back to 2 or 3 inches in length at the winter pruning of the trees. Remove all curled and blistered leaves, and burn them immediately. These remarks apply to pyramidal and bush trees in the open, as well as to wall trees.

Strawberry-beds.—Any ground that is intended to plant with Strawberries in the month of August should be heavily dressed with farmyard-manure and trenched forthwith. The manure may be placed at the bottom and between the first and second spit. In some gardens where the soil is in good condition, Strawberries follow early Potatos, the preparation of the land for the one crop fitting it for Strawberry culture. On poor soils, however, trenching and manuring are essential to good crops of fruit. Remove the flower-trusses from St. Joseph and from the Alpine Strawberries. The rainfall of the past week has caused the ripening fruit to decay on the plants, and as may be expected, slugs are very troublesome and numerous. A few fruits of Royal Sovereign have been gathered at Dropmore, but for the general crop a week's sunshine will be needed before a good supply can be looked for.

The Gooseberry Sawfly Caterpillar has attacked the bushes in this neighbourhood, and where hand-picking is not resorted to, it is causing much damage.

THE APIARY.

By EXPERT.

ALL grass should be cut down round the hives particularly round the front. Many bees are lost in the long grass as they come home laden with pollen, and tired, fall down in the grass and die. Each hive, whether bar-frame or skep, should have a good alighting board running down to the ground, but not too steep, to enable the bees to crawl up more easily; a slate will answer the purpose very well. The first fine, warm day should be devoted to examining the brood chamber; the dummy-board should be removed, and the frames all drawn back, giving as much room in the front as possible, having a carbolic cloth at hand to place over the top, and with a large knife or scraper cleanse the sides and floor-board, and brush the rubbish back, placing back the frames as there is room, and so continue till the whole has been done. Destroy all traces of wax-moth in your manipulations; and remove all old and black frames which do not contain any brood, and put new ones in their place, with full sheets of foundation. Sprinkle a little powdered borax or naphthaline on the quilts to keep off ants, wax-moths, &c. Any suspicious comb should be sent to an expert for an examination; the grubs should be pearly white and clean, but if they are a dark brown colour, and there is a sticky dirty substance about them, they should be at once treated as foul brood, and the usual steps taken for the care of the remaining hives, and also for the protection of your neighbours' colonies. Water should be replenished near the hives every three or four days, laying small pieces of wood on the surface for the bees to crawl over, this is necessary to save the bees from drowning; if you watch the bees near a pond you will see many bees in the centre drowning, having nothing to cling to. In all work with bees, avoid all quick, jerky movements, and do all your work if possible from the back of the hives.

APPOINTMENTS FOR JULY.

WEDNESDAY,	JULY 1	National Rose Society's Exhibition, in Temple Gardens, London. Hanley Horticultural Fête (two days). Richmond (Surrey) Horticultural Show (two days). Hereford Rose Show. Portsmouth Rose Show.
THURSDAY,	JULY 2	Rose and Horticultural Shows at Canterbury, Colchester, and Norwich.
FRIDAY,	JULY 3	Royal Botanic Society, Lecture. Maidstone Horticultural and Rose Show.
SATURDAY,	JULY 4	Société Française d'Horticulture de Londres, meet. Rose and Horticultural Shows at Sutton and Walton-on-Thames.
TUESDAY,	JULY 7	Royal Horticultural Society's Committees. Lecture on "Hardy Irises." Wolverhampton Floral Fête (three days). Rose and Horticultural Shows at Gloucester and Harrow.
WEDNESDAY,	JULY 8	Rose and Horticultural Shows at Farningham, Croydon, Stevenage, and Ealing.
THURSDAY,	JULY 9	Rose Shows at Bath, Eltham, and Woodbridge.
FRIDAY,	JULY 10	Royal Botanic Society: Lecture. Rose Show at Ulverston.
SATURDAY,	JULY 11	Royal Botanic Society Meet. Rose and Horticultural Society at Manchester Botanical Gardens.
TUESDAY,	JULY 14	Cambridge Horticultural Society's Show.
WEDNESDAY,	JULY 15	National Rose Society's Northern Show at Glasgow. National Sweet Pea Society's Exhibition at Earl's Court. Rose Shows at Formby, and Thornton Heath. Ipswich Horticultural Show. Nottingham Horticultural Show (two days).
THURSDAY,	JULY 16	Highgate Horticultural Society's Show.
FRIDAY,	JULY 17	—Royal Botanic Society: Lecture.
TUESDAY,	JULY 21	Royal Horticultural Society's Committees meet, Lecture on "Mediæval Medicines:" National Carnation and Picotee Society's Show at the Drill Hall, Buckingham Gate, Westminster; Tibshelf Rose Show.
WEDNESDAY,	JULY 22	Northumberland, Durham, and Newcastle Botanical and Horticultural Society's Exhibition at Newcastle (three days); Cardiff and County Horticultural Society's Show (two days).
FRIDAY,	JULY 24	Royal Botanic Society's Lecture, Rose and Horticultural Show at Halifax.
SATURDAY,	JULY 25	Saltaire Rose and Horticultural Show.
TUESDAY,	JULY 28	North Kildare Horticultural Society's Show.
WEDNESDAY,	JULY 29	Midland Carnation and Picotee Society's Show at Birmingham; Chesterfield Floral and Horticultural Show.
THURSDAY,	JULY 30	Irish Gardeners' Association meet.
FRIDAY,	JULY 31	—Royal Botanic Society Lecture

SALES FOR THE WEEK.

TUESDAY, JUNE 30—
Clearance Sale of 7000 Established Orchids, at the Valebridge Nursery, Hayward's Heath, by order of Trustee, by Protheroe & Morris, at 12.30.

WEDNESDAY, JULY 1—
Japanese Dwarf Trees, Sweet Bays, and Palms, at Stevens' Rooms, at 1 30.

FRIDAY, JULY 3—
Orchids in choice variety, at 67 and 68, Cheapside, E.C., by Protheroe & Morris at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from observations of Forty-three Years at Chiswick —62 7'.

ACTUAL TEMPERATURES:—

LONDON.—*June* 24 (6 P.M.): Max. 68°; Min. 56°.
June 25 (Noon): Fine; 6..

PROVINCES. — *June* 24 (6 P.M.): Max. 70°, S.E. England; Min. 53°, N.E. Scotland.

Fungus Cultures.

SOME time since we called attention to the culture of Mushrooms in the laboratory by methods familiar to the students of fungi. These methods not only promise to do away with the capriciousness and uncertainty which attach to the cultivation of Mushrooms as ordinarily practised, but also to render us independent of the somewhat filthy conditions which are now indispensable. The "pure-culture" ensures the possibility of the cultivation of the spores of the Mushroom on glass by the aid of appropriate nutritive solutions without admixture with other fungi, which so frequently annoy the cultivator of Mushrooms.

The matter is at present only in the experimental stage, and so must continue probably for a long time to come. Still, if the botanist in the laboratory can succeed in isolating the Mushroom spores, and cultivating them, so as to get a "pure culture," there is every reason to hope that in time the process may be so developed as to be available for the practical man on a commercial scale.

The cultivation of Truffles has also long been an object sought after by the practitioner, but hitherto with little success. If, however, the researches of certain French experimenters be confirmed, the culture of Truffles on a commercial scale is only a matter of time. Various botanists have already succeeded in growing the Truffle in the artificial conditions of the laboratory, so that as in the case of the Mushroom, there is good reason to hope that at no very distant future, Truffle culture may be carried on with as great a degree of certainty as any other culture.

The "mycelium" or spawn is familiar to all growers: it consists of very fine white thread-like tubes, which under some conditions, produce small spores called "conidia," which fall off and grow into new spawn-threads; whilst at other times and under other conditions, they may develop another mode of fructification, consisting of a long tube known as an "ascus," filled with relatively large oval spores which, like the conidia, have the power of germinating and producing a new mycelium. There are thus two forms of spores, the "conidia," developed externally on the ends of the spawn-threads, and the "ascospores," developed in the inside of long cells or tubes.

In addition to these two methods of fructification, the spawn-threads become compacted into hard irregular masses called "sclerotes," which may remain dormant for a long time, but which ultimately develop spawn-threads. At one time these different forms were thought to be so many different species, but it has now been proved that they represent not distinct species, but stages of growth of one species. It is necessary to enter into these details in order that the researches of the French experimenters now to be mentioned may the better be understood.

M. LOUIS MATRUCHOT is one of the experimenters alluded to, and he contributes the results of his work to a recent number of the *Comptes Rendus*, May 4, p. 1099. He describes his method of sowing the spores of Tuber melanosporum (the Perigord Truffle), on slices of Potato with nutritive liquid added, and the whole rendered aseptic. At the end of several weeks, development was very abundant, and renewed trials enabled the experimenter to produce the spawn in a practically unlimited quantity.

Wishing to further prove the reliability of these results, M. MATRUCHOT betook himself to Perigord and collected Truffle-spawn on its native ground. From this spawn pure cultures were also obtained which showed beyond doubt the identity of the spawn taken from a wild Truffle with that obtained by cultures in the laboratory. These two series of cultures, the artificial and the natural, served as checks one upon the other, and showed that the spawn obtained in both cases was identical.

If additional proof were needed it was furnished by comparing the cultures of T. melanosporum with those of T. uncinatum (the Bourgogne or Burgundy Truffle). "I repeated my experiments," says M. MATRUCHOT, "with the latter, and the spawn so obtained only differed from that of the former by certain relatively unimportant characteristics which served to distinguish the two species one from the other."

In the production of Truffles a plantation of Oaks is considered necessary, and a period of from eight to twenty years may elapse before the Truffles appear, and the crop is always irregular and uncertain. By sowing the spawn this irregular production can be controlled. The Perigord Truffle is more esteemed than the Bourgogne Truffle; and it may be expected that it may be cultivated in every place where the fungus grows spontaneously. As the two species are sometimes found growing together, the conditions of growth must be similar, and it would evidently be possible to insert spawn in such a way that the two kinds could be cultivated side by side.

In a later issue (May 23) of the *Comptes Rendus*, M. RAPHAEL DUBOIS mentions experiments made by him as a result of which he also raised the spawn of the Truffle, but in a somewhat different manner, as his attempts to follow M. MATRUCHOT's plan above alluded to, produced only negative results. M. DUBOIS endeavoured to raise the spawn by contact, not with sterilised matter, but with living vegetable tissues. "With this object," M. DUBOIS says, "I made, as aseptically as possible, a notch in a tuber or root able to endure desiccation for a long period, and I introduced into this notch a thin wedge-shaped fragment of Truffle, the upper part of which held the "asci" containing the spores of the fungus. The whole was kept moist and dark. After some weeks, a spawn quite similar to that gathered in the fairy rings that occur in the Truffle-beds of Vaucluse developed at the point of contact of the graft; it spread to the young roots of the Oaks, which were soon covered with a downy layer. This spawn was gathered with every possible aseptic precaution, and sown in vessels containing lumps of gelatinous substance, formed of cooked starch, glucose, glycerine, asparagin, and a little tannin. The spawn developed on all sides on these lumps, and formed large white spots, but there were no signs of fructification after a year. The lumps was then buried at the foot of small Truffle-Oaks that had been raised in the garden of the laboratory of Tamaris. These sowings were made early in the year, and I do not yet know the results."

A third contribution, which, though only now published, appears to antedate the other two, is made by M. EMILE BOULANGER, whose paper, deposited by him in the Archives of the Academy of Sciences in December, 1900, was opened at his request recently, when it was found to contain the following statements:—

"Two years ago (1898) I caused the ascospores of the Truffle to germinate in a sterilised watery liquid. Since then (January, 1899), I have repeated the experiment many times. I thus cultivated the spawn consequent upon the germination of the spores, and reproduced it in millions by pure cultivation. I also cultivated Tuber melanosporum and T. uncinatum.

"The spawn developed well on slices of Carrot, on the same material buried in calcareous earth, in calcareous earth only, on mould, and under the ordinary conditions in which cultures are made, but carbonate or bisulphate of lime facilitated development.

"The ascospore of T. uncinatum yielded a well-developed spawn, and this gave rise to a 'perithecium,' that is, to the Truffle itself; tasteless, scentless, and deformed doubtless, but nevertheless an adult perithecium, inasmuch as it contained normal asci. The spawn also developed a conidial form, wherein the spores were united together in numerous clusters and connected by mucilage. A second conidial form appeared which seemed to be a Monilia or an Amblyosporicum."

Wishing to compare his results with the Truffle as growing naturally, this experimenter also studied it in its wild condition, buying a plot of land for the purpose. A part of the soil there has been planted with the spawn, and the results were awaited (in 1900-1902) by the observer, who proposes to enlarge the scope of his experiments.

He remarks that:—"The ground where I set the Truffle spawn has been for some years planted to form an Oak wood; the soil is calcareous, and contains hardly any siliceous sand or clay, but is rich in leaf-mould from the trees. This is like the soil of the best Garladais Truffle-beds, and I have ascertained by analysis that the composition of it is identical with that of the Truffle-beds of M. BOSREDON."

Lovers of Truffles will await the publication of further details with interest.

THE GIANT ORCHID AT KEW.—We learn that we were under a misapprehension in supposing that the photograph of which we published a reproduction last week represented the flowers of Grammatophyllum speciosum. That noble Orchid did indeed produce a few flowers at Kew last year, but they are not shown in the photograph. The flowers shown are really those of Oncidium altissimum, the inflorescence of which is so placed in front of the Grammatophyllum as to give rise to the impression that the flowers belong to the last named species.

LINNEAN SOCIETY.—The last general meeting of the season took place on Thursday, June 18, 1903, Prof. S. H. VINES, F.R.S., Pres., in the chair. A volume of portraits of eminent men of science, compiled by Dr. R. C. A. PRIOR, about 1854, was presented to the Society by his executor, Sir PRIOR GOLDNEY, Bart., and for this a special vote of thanks was passed. The Rev. T. R. R. STEBBING, F.R.S., F.L.S., on behalf of Mrs. SLADEN, presented a portrait in oils, kitcat size, by the late H. T. WELLS, R.A., of the late Mr. WALTER PERCY SLADEN, who from 1885 to 1895 was Zoological Secretary. The President, in accepting the gift on behalf of the Society, submitted the following resolution, which was carried by acclamation:—"That the portrait of the late WALTER PERCY SLADEN, for ten years Secretary of the Linnean Society, now offered on behalf of Mrs. SLADEN, be accepted, and that the thanks of the Society be conveyed to the donor." Mr. C. H. WRIGHT, A.L.S., exhibited seeds of a new species of Æschynanthus, described in a paper subsequently read. Mr. C. B. CLARKE recalled the fact that the four sections of the genus still maintained were established by ROBERT BROWN. Mr. C. B. CLARKE, F.R.S., F.L.S., showed specimens of a variety of the Primrose, Primula vulgaris, Huds., with remarkably small flowers, to which he proposed to give the varietal name Chloe. Dr. RENDLE made a short observation on this exhibition. A photograph sent by Mr. J. WABY was shown, and an extract from his letter received with it was read, stating that two specimens of Corypha elata in the Georgetown Botanic Gardens, of similar age and planting, were photographed; one had followed the normal course, flowered, fruited, and died; the other, instead of flowering, had developed a secondary crown of leaves (fig. 160). Mr. FREDERICK D. OGILVIE, of Harrogate, sent for exhibition a water-colour drawing of the Cowthorpe Oak, taken in 1902, thus bringing down the record one year later than the photographs shown by Mr. J. CLAYTON, on February 19 last, at the General Meeting held on that day. The Rev. JOHN GERARD, S.J., F.L.S., showed a fresh specimen of the proliferous form of Geum rivale, which he had received from Stonyhurst, Lancashire, a few days before. The President contributed some remarks on the teratological significance of the phenomenon in question, and the need of caution in drawing conclusions. The first paper was by Mr. S. T. DUNN, on "New Chinese Plants," and was, in his absence, read by Mr. C. H. WRIGHT. In this, descriptions of over seventy new species are given, founded on specimens collected chiefly in Yunnan, by Dr. A. HENRY and by Mr. E. H. WILSON; amongst them are a Magnolia and a Bombax, each of which was seen on one occasion only, and then as a solitary tree. A detailed account is given of the synonymy of the nine species of Cryptotæniopsis, Dunn, a genus of Umbelliferæ, in which the secondary branches of the inflorescence are cymose, not umbellate, as is usually the case in the order. Eleven new species of Senecio are described, bringing the total now known from China up to 129. They are remarkable for the diversity in habit which they present; one has radical leaves, much resembling those of the common Ivy, and in another each capitulum bears a solitary flower. Two species of Æschynanthus are described by Mr. W. BOTTING HEMSLEY, one of which adds a second species to the section Microtrichium, distinguished by the short, solitary hair at each end of the seed. A new genus of Cyrtandraceæ (Rhabdothamnopsis, Hemsl.) is described; it is allied to Streptocarpus, but has the shrubby habit of the New Zealand Rhodothamnus Solandri, A. Cunn. The last paper read was in abstract, entitled "On the Anatomy of the Leaves of British Grasses," by L. LEWTON-BRAIN, B.A., F.L.S. The author alluded to the work on this point by Duval-Jouve, Guntz, Schwendener, Pée-Laby, and

FIG. 160.—CORYPHA ELATA, WITH SECONDARY CROWN, IN THE BOTANIC GARDEN, GEORGETOWN, DEMERARA.
(Photograph sent by Mr. Waby)

Raunkier. The present paper is the result of testing the classification of leaf-structure devised by Prof. MARSHALL WARD. Four main types are recognised:—(1) Leaves in which the upper surface is flat or nearly so; (2) the upper surface marked by distinct though not very high ribs; (3) the upper surface marked by very distinct and high ribs; (4) the upper surface reduced to a mere fold in an almost solid leaf. Observations are recorded on the epidermis, vascular bundles, bundle-sheaths, mechanical tissues, and chlorophyll-containing tissue. Then follows descriptions of the grasses examined, classified according to the characters presented, as noted above; and the paper closes with a consideration of the structure as influenced by environment.

VISIT TO MR. KAY'S VINERIES. — The members of the Société Française d'Horticulture de Londres, have been invited by Mr. PETER KAY to visit his celebrated vineries at Finchley on Saturday, July 11. Mr. G. SCHNEIDER requests that members will meet at the Railway Station, Finchley (Church End), at 4.15 P.M., on that day.

CORNISH PLANTS.—To Messrs. GAUNTLETT & Co., of Redruth, we are indebted for a very interesting and beautiful consignment of flowers from their nurseries. A Tree Pæony, named *fastuosa*, is a superb semi-double variety, the flowers of which measure 11 inches in diameter, whilst the delicate silky petals are pure snow-white—a lovely flower indeed. *Escallonia macrantha* we are familiar with on the coast of Kent and Sussex; but never have we seen it with such

FIG. 161.—ODONTOGLOSSUM CRISPUM VAR. SANDERÆ, FROM THE GARDEN OF NORMAN C. COOKSON, ESQ.
(Photographed by Mr. H. J. Chapman.)

DUTCH HORTICULTURAL AND BOTANICAL SOCIETY.—On the occasion of the meeting of the Floral Committee on May 27, 1903, at Amsterdam, the Committee awarded First-class Certificates to Allium Erdeli, from Messrs. E. H. KRELAGE & SONS, Haarlem; to Tulip la Merveille, from Mr. P. W. VOET, Overveen, near Haarlem; and to Tulipa elegans lutea maxima, from Mr. P. W. VOET, Overveen, near Haarlem. Certificates of Merit were granted to Allium Karataviense, from Messrs. E. H. KRELAGE & SON, Haarlem; to Lælio-Cattleya Major Baden-Powell, from Mr. P. W. SUTORIUS, Baarn; and to Scilla campanulata Excelsior, from Messrs. G. C. v. MEEUWEN & SONS, Heemstede. Botanical Certificates were awarded to Odontoglossum hebraicum, from Mr. C. J. KIKKERT, Haarlem; and Pitcairnia xanthocalyx × P. punicea, as a new plant, from the Hortus Botanicus, Utrecht. Honourable Mention to Odontoglossum Adrianæ imperialis, and O. crispum flaveolum, from Mr. C. J. KIKKERT, Haarlem; to a bunch of Roses var. Gen. Jacqueminot, shown by Mr. F. A. HEEMSKERK, Amsterdam. Cultural Commendation to Utricularia montana, from the Hortus Botanicus, Utrecht. A Silver-gilt Medal was awarded to a collection of Cottage Tulips in twenty-five varieties, shown by Messrs. E. H. KRELAGE & SON, Haarlem.

BIG BEGONIAS.—We have received some cut flowers of tuberous-rooted Begonias from Mr. A. LL. GWILLIM, Cambria Nursery, New Eltham, Kent. The double-flowered varieties were nearly similar in size to Pæonies, and the colours were good.

STRAWBERRY CULTIVATION IN DEVON. — We read in the *Kingsbridge Journal* of June 20 that:—"Strawberry-culture for some time past has been undertaken on rather a large scale at Aveton Gifford, and now Strawberries have been picked for a fortnight past from the gardens on the slopes of the Avon at Aveton Gifford. They are generally the first in the market with good, sound fruit, which shows that these plots are admirably adapted for Strawberry-culture. I understand there are several acres of similar plots on the slopes of the river, which, if cultivated, would prove probably a very profitable investment, as the farmers are willing to let these plots on favourable terms. It would be well for those having the necessary knowledge and capital to turn their attention to this locality, for a better situation for the culture of this popular fruit could not be obtained, and a ready market is always obtainable for the disposal of the fruit."

large and deep rose-coloured flowers as this Cornish specimen presents. The corolla measures three-quarters of an inch in length. As an evergreen shrub, the foliage alone is very attractive, but near London it is somewhat tender. *Escallonia langleyensis* × is a hybrid between E. rubra and E. macrantha, with small, glistening, ovate-acute leaves, tapering at the base, and clusters of bright red flowers at the ends of the branches. Instead of forming a kind of tube, as in macrantha, the petals spread and form an apparent rotate corolla. *Escallonia exoniensis* × bears terminal many-flowered racemes of white tubular flowers, with the petals rolled back at the tips. It is particularly showy, and, like the Escallonias generally, is attractive for its foliage also. The Escallonias were the subject of a monograph in these columns July 12 and 19, 1873. *Olearia macrodonta* has Holly-like leaves, white on the under-surface, and much-branched clusters of star-like white flower-heads. It is a very fine shrub, and should find a place in any garden

where shelter can be afforded. It was figured in the *Gardeners' Chronicle*, September 4, 1886. *Olearia nitida* is scarcely, if at all, less attractive. Its leaves are not so deeply toothed as those of O. macrodonta, resembling those of an Eleagnus, and the large inflorescence is looser, and the flower-heads somewhat smaller (see *Gardeners' Chronicle*, July 10, 1886, p. 45). Messrs. GAUNTLETT consider it one of the hardiest of the group.

—— From another Cornish garden (that of Mr. J. RASHLEIGH, of Menabilly), we have received a very interesting and beautiful consignment, mostly of species which require the shelter of a glass-house in less-favoured climates :—

Daphniphyllum glaucescens.—This is a handsome evergreen shrub, with Laurel-like, elliptic, lanceolate acuminate, entire, stalked leaves, 6 to 7 ins. long, by 2½ ins. wide; light green and shining on the upper, milky-white on the lower surface. The leaf-stalks are about 2 ins. long, and, like the herbaceous shoots, are of a rich rose colour. The male flowers are on separate plants, and are not before us. The female flowers are in loose axillary racemes, about 3 ins. long. Each flower consists of a flask-shaped ovary, covered by a purplish bloom, and surmounted by two sessile, spreading stigmas. At the base of the ovary are two or three minute glandular scales, but no trace of calyx or corolla. In the interior are two cavities, from the inner angle of each of which hangs, by means of a conspicuous funicle, a single upturned ovule. We have been thus particular in giving details of the flower, for not only is the shrub a very handsome one so far as its foliage goes, but the flowers are so peculiar that botanists are by no means agreed as to what order it should be placed in. To us it seems to approximate to the Euphorbiaceæ, with which, indeed, it is now generally placed; but it has no milky juice. It is generally known in gardens under the name of D. glaucescens; but there seems to be some doubt as to the correctness of this name, as NICHOLSON, in the Supplement (1900) to the *Gardeners' Dictionary*, refers our present plant to D. macropodum, a native of China and Japan; whilst D. glaucescens is a native of Southern India, Ceylon, Java, and not so likely to be hardy here. HEMSLEY, in the *Enumeration of Chinese Plants*, however, mentions both species as natives of China. There are therefore several points to be cleared up by the botanist; but the lover of handsome evergreens need not wait till these doubts are resolved, but at once add so striking a shrub to his collection, and keep it under the garden name till better advised.

Hydrangea scandens.—A climbing plant with large, long-stalked, shining, cordate, ovate, acuminate, dentate leaves, like those of a Poplar. The flowers are very numerous, white, in much branched loose corymbs like those of the Elder, but provided at the circumference with barren flowers as in other Hydrangeas. These flowers are on long, slender spreading stalks, and consist of four obovate, obtuse white segments, surrounding rudimentary floral organs. It may be surmised that these white sterile flowers may serve as signals to call the attention of insects to the food stored in the true flowers which they encircle. This beautiful climber is growing like Ivy on a Turkey Oak about 60 feet high, and has nearly reached its top. It forms a most strikingly beautiful object.

Hakea microcarpa.—An attractive shrub, native of Australia. It has long slender cylindrical curved leaves, resembling Pine-needles, green in colour, and thinly covered with small flat silvery scales. The form and internal structure of the leaf seem to be adaptations to a dry climate, by preventing undue evaporation. Nevertheless at Menabilly, where the conditions are quite different, it grows luxuriantly in the open air, and is now covered with stalked, racemose clusters of whitish flowers. The four perianth segments are white, linear, curved, expanding at the tips into a spoon-shaped extremity, forming a cavity in which the two-lobed anther is lodged. The ovary is obliquely oblong, with a single cavity containing two ovules, and surmounted by a long curved style, with a cap-shaped stigma. As the anthers open first, and the segments bearing them are curved so as to get out of the way of the stigma, it would seem that the agency of insects was required to ensure fertilisation. The hardy woody seed-vessels are on short thick stalks, each fruit about ½ inch long, oblong, pointed, tubercled, and with a shallow suture along one edge. They remain attached to the branch for a long time, splitting open when circumstances are favourable to liberate the seed. In the specimen before us, these hard woody fruits of a former year are intermixed with the flowers of the present season.

Leptospermum scoparium.—A charming Myrtaceous flowering shrub, of much-branched habit, the branches loosely spreading, with narrow, ovate, dotted leaves, and very numerous flowers, each rather less than half an inch across, with ovate or rounded white petals emerging, with the pink incurved stamens, from the rim of a deep green cup containing the five-lobed ovary; the latter surmounted by a columnar style, terminated by a green cushion-like stigma.

The variety juniperinum, which is also sent, agrees with the type, except that the leaves are even more narrow and linear. Both are natives of New Zealand. KIRK, in his *Forest Flora of New Zealand*, figures the plant at tab. 117, and tells us that it is found in great abundance in those islands, where it takes the place of the Gorse in the British Islands. It is very variable in stature, according to circumstances. Its leaves are used as a substitute for Tea. Mr. RASHLEIGH's specimens bear ripe fruit as well as flowers.

"AMERICAN GARDENING."—The death of Mr. J. W. WITHERS caused an interruption in the publication of this, the only gardening paper in the United States addressed to the amateur as distinguished from the trading horticulturist. We are glad to see Mr. LEONARD BARRON continues as editor, and that Mr. T. B. MEEHAN, the son of our old friend, and other business men, will be associated with him as a syndicate, in the conduct of the paper. Improvements and new developments are promised, and we look forward with expectation of a prosperous career for our contemporary. As suggestions are invited, we venture to hope that supervision will be exercised in the advertisement department, as well as in the text.

THE RAINFALL.—In further reference to the rainfall of the year, so far as registered at the County Hall, Kingston, it is interesting to note that up to the end of the month of May the amount recorded was 9·89 in. This quantity was made up as follows:—January, 2·44; February, 1·12; March, 2·57; April, 1·69; and May, 2·07. Were the later days of June to be as wet as the middle portion of the month has been, then might its rainfall possibly be equal that of the previous five months. Up to and including the 20th, there had been ten dry days, and ten wet ones; during those ten days the rainfall reached to 6·37 inches. Probably that constitutes a ten days' record for almost any previous month. We have need now for abundant sunshine. The sun has a good deal to do to bring thermal heat up to date. Of moisture we may well cry "Hold, enough."

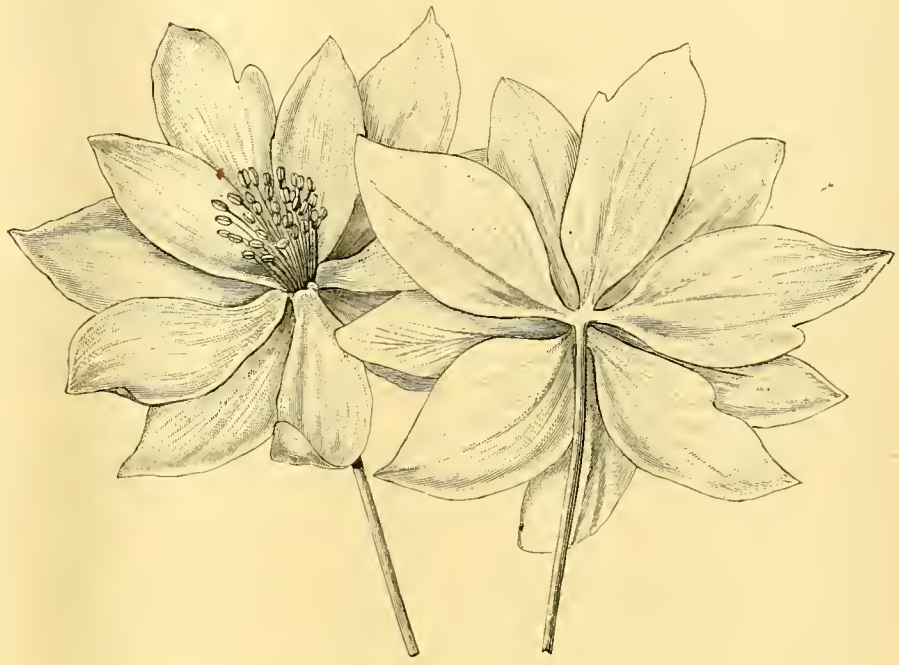


FIG. 162.—THE STELLATE COLUMBINE. (SEE P. 418.)

A FLORAL CLOCK IN EDINBURGH.—Recently a true floral clock was established in West Princes Street Gardens, the works being hidden in the pediment of the Ramsay Statue. The face occupies the position of the crown in last year's scheme of planting, the remaining portion being unaltered. Sedums, Anteunaria, Echeverias, and "Golden Feather," the latter marking the hours, are the chief plants employed, and the hand, a zinc receptacle, is furnished in the same manner. Crowds of people visit the innovation; and punsters are exercising their wits about Thyme to an unlimited extent. Mr. MCHATTIE meanwhile retains his modesty.

THE ROYAL SOCIETY.—Among the exhibits at the Royal Society's *soirée* on Friday last there were shown from Kew, Masdevallia muscosa, bearing about 100 flowers; Dischidia Rafflesiana, bearing at least a score of good pitchers and a

few of the pitcher leaves; Mesembryanthemum Bolusii, very large plants, and looking more like chunks of grey rock than plants.

THE STELLATE COLUMBINE.

THERE is a very old variety of the Columbine in which the spurred petals are not produced, but in their stead flat petals are developed, in form like the ordinary sepals (fig. 162, p. 417). The variety has been in existence for centuries, and is well known to the curious. Every now and then it turns up as a so-called hybrid between the Clematis and the Columbine, and it was so staged at the last Temple Show. With a full sense of the impossibility of destroying an error of this kind, it is nevertheless a duty to protest against it, and at least to clear ourselves of any responsibility in the propagation of error.

BRITISH FERN NAMES.

IT is a common gibe against the British fernist that the names he applies to his varietal pets are often far more curious and far less beautiful than the plants themselves; and it is certainly to be deplored that briefer names cannot be given to some of the genus than those which the scrupulous fancier deems it his duty to attach to them. This evil, however, is practically not so great as it appears to be to the outsider, since those who know find short cuts, and only use the long names in their catalogues when needs must. That lovely Polystichum, for instance, known quasi-scientifically as Polystichum angulare var. divisilobum plumosum densum, Jones and Fox! becomes shortened to Jones's densum; and its fair Lady Fern compeer, Athyrium filix-fœmina var. plumosa superba, Druery, figures colloquially as plain p. D. (plumosum Druery). In this way much breath is saved, and visitors' nerves are spared from what may be termed "tetanus botanicus" in their endeavours to pronounce. In the truly scientific direction, matters are no better, for most species have at least half-a-dozen synonyms, i.e., names given by different authorities at various times, and every now and again added to by revolutionary botanists, whose well-meant endeavours at reform render the confusion more often than not worse confounded. It is, however, with neither of these contentious branches that I propose to deal *in extenso*, but rather with the origin of the accepted names of our British species, though even here, as will be seen, it is not quite plain sailing.

To start politely as well as alphabetically, we will take the Lady Fern, Athyrium filix-fœmina. We see at once that the term Lady Fern is a courteous translation of filix-fœmina, i.e., the female Fern. Here at the outset we are confronted with a mis-statement, we had almost written "miss-statement," but saved ourselves in time, for the Fern is no more female than male, and obtained its name, long before Fern reproduction was understood, solely on account of its more delicate and graceful make, as compared with the equally misnamed, coarser-looking male Fern, Lastrea filix-mas. Both these Ferns, like all others, bear spores which are capable of producing what are to all intents and purposes male and female flowers, the existence of which was quite unknown to the old botanists from whom these names have been handed down. If we go to Kew and see the grand collection of British Ferns there, we shall find that while the popular names of male or female are duly recognised, despite their misleading nature, the word Athyrium is superseded by Asplenium, or Spleenwort. Here we are at once plunged into the controversial arena, for no student of the Lady Fern accepts this name, except under protest, the Spleenworts being in all respects a different tribe of plants. The male Fern has been partly dealt with above, but not entirely, since it is a member of the Buckler Fern group, to which the broad Buckler Fern (L. dilatata), the lemon-scented Buckler Fern (L. montana or Oreopteris), the Marsh Buckler Fern (L. Thelypteris), and the hay-scented Fern (L. venusta), the lime-stone Buckler Fern (L. rigida), and one or two others of less-defined standing (L. spinulosa, L. cristata, and L. uliginosa) belong. The term Buckler Fern is applied because of the peculiar shape of the little cover which protects the spore heaps on the backs of the fronds. This is kidney-shaped, and convex, and thus somewhat resembles an ancient Buckler or Shield; but the Polystichums or Shield Ferns proper must not be confounded with this group, as their covers are perfectly round, and attached, Mushroom-fashion, by a central elevation, though it can hardly be termed a stalk. Here, again, the British Fern-grower differs from the Kew authorities, who, to a large extent lump these two very different groups under the one name of Aspidium, which means Shield, and the practical man naturally objects to such a comparatively insignificant feature as this minute spore-cover overruling the far more manifest differences in make and habit of growth with which he is familiar in the plants as a whole.

The Cystopteris, or Bladder Ferns, the latter a literal translation of the botanical name, are less open to controversy. The spore-cover here is translucent, and rounded in such a way as to bear a very fair resemblance to a bladder, whence the name, and no other Fern in the British list can possibly clash with this group.

The Spleenworts, or Asplenia, which word has the same meaning, derive their name from a long-exploded idea that they were useful as remedies in diseases of the spleen—another inheritance from ancient history, without any real reference to the Ferns concerned.

The Polypodies, or many-footed Ferns, are appropriately enough named, as they have creeping rootstocks, like the well-known Haresfoot Ferns. The oddity here, however, comes in that a number of many-footed Ferns, the Haresfoot among them, are not recognised as Polypodies, the real distinguishing mark of the genus so-called (Polypodium) being the absence of any covering to the spore heaps, an anomaly which has actually led to an undoubted form of Lady Fern (A. f.-f. alpestre), with a shuttlecock crown, i.e., only one foot, so to speak, being ranked with the many-footed tribe.

The Hartstongue, or Scolopendrium vulgare, is an example of the popular and botanical names being given for quite diverse, though not conflicting, reasons. The popular name is obviously based on the strong resemblance of the long, strap-shaped, taper-pointed frond to a tongue; while the botanical name refers to the spore heaps, which being very long and conspicuous, and arranged in two rows on the frond backs, give a resemblance to the legs of a centipede (Scolopendra), and thus justify the name. The Fern, however, is very closely allied to the Spleenworts, from which the fructification only differs in the lines being associated in pairs, though when the spores are ripe the two coalesce to form a single mass.

The Parsley Fern (Allosorus crispus) is another example of an appropriate popular descriptive name associated with a botanical one descriptive of the spore arrangement, plus a "curly" adjective.

The Bristle Fern (Trichomanes radicans) is a translation, *trichos* alluding to the hair or bristle, which will be found in the centre of the egg or cup-shaped spore receptacles, whence it prominently projects; while the *radicans* means rooting, in allusion to its many-footed root structure. Hymenophyllum means a translucent, film-like leaf, and this name is decidedly better than the popular one of the Tunbridge Fern, as the plant is found very widely disseminated throughout the world.

The Blechnum, or Hard Fern, is popularly well named on account of the toughness of its pretty fronds; but the word Blechnum is simply a form of a Greek word meaning Fern, hence is neither descriptive nor discriminative, except arbitrarily. This Fern normally is recognisable by bearing two kinds of fronds, lax-growing barren ones, and erect, slender, fertile ones, in which it resembles the exotic genus Lomaria. There is, however, a distinct difference in the fructification, the spore-cover of Lomaria being represented by the rolled-in-edge of the frond-division itself, as also occurs in the Pteris tribe; while in Blechnum it is an independent translucent skin, originating well within the flat margin. Despite this well-recognised difference, which is clearly shown in our native species, scientific botanists, for some inscrutable reason, persist in naming Blechnum spicant Lomaria, in face of their own ruling.

Pteris aquilina, the common Bracken, literally translated, means "the eagle's wing;" and when we see the fronds of this beautiful Fern in its full woodland beauty, we can well appreciate the appropriateness of the name. The word Pteris, however, due to the general resemblance of Fern-fronds to a feathered wing, has not only been specially applied to a particular genus of Ferns, but to the whole family as an order (Pterideæ); so that we speak of Fern-lore as Pteridology, and Fern-lovers as Pteridophilists, and so on, with the usual scientific love of "lang-nebbed" words.

The Adiantums, a large exotic genus, of which we have only one representative, A. capillus-veneris, popularly translated as the Maidenhair (though Venus's it should be), derive their generic name from the Greek *adiantos*, dry, owing to the faculty possessed by the delicate foliage of shedding the raindrops, *à la* duck's back. It is, however, the slender black lucent stalks which carry the frond and subdivisions which justify the "Maidenhair" name; and it is for this same reason that the little Spleenwort, Asp. Trichomanes, has acquired the name of the Maidenhair Spleenworts, and its more robust relative Asp. Adiantum nigrum that of the Black Maidenhair Spleenworts by translation, though neither belongs to the Maidenhair genus proper.

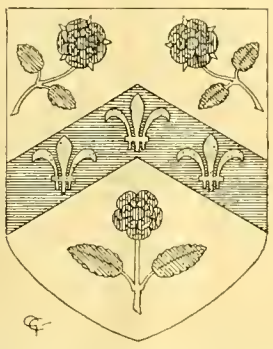
Another member of the Spleenwort genus, the Wallrue (Asp. Ruta muraria) is a translation of the botanical name, due, of course, to its resemblance to small bunches of Rue. The little Adderstongue, Ophioglossum vulgatum, is a similar case, the literal translation being "the common or vulgar serpent's tongue," the little spike which bears the spores, striking out between the plain undivided fronds like the fang of a snake. Botrychium lunaria, the Moonwort, runs on same lines, and refers to the moon-shaped side divisions of the fronds; while Botrychium means a bunched fructification like the little Grape Hyacinth (botryoides).

The Royal Fern, Osmunda regalis, owes its first name to some legendary lore connected with a certain Osmund, who hid himself in a grove of this Fern; while regalis or royal is peculiarly fitted to a majestic Fern which can grow a dozen feet or more high, and may be still found on the banks of the Upper Dart of such a size and in such abundance as to resemble coppices of free-growing shrubs.

So much for the popular and botanical names of our native species, whence it is abundantly clear that the former are the more natural as a rule, and less open to dispute, than the latter.

To deal fully with the question of varietal names would demand more space than this article permits, or the general reader would care to traverse, since while the species number about forty-four only, the varieties run into a couple of thousand, and like the species owe their names to a multitude

of different authorities at various times, not all of whom were competent for the task, or cognizant of what had already been done. Some people argue that it is wrong to give Latin or dog-latin descriptive names, and that arbitrary complimentary names, such as Mrs. Dashington or Edith Blankley, should be given in the same way as to floral varieties. The conscientious Fern-lover, however, strongly objects to thus obliterating the history as well as the description which appropriate names involve. A very important fact in this connection is that most of our finest varieties of Ferns have either been found wild, or, if obtained by selection, have originated in one or two generations, so that their pedigree is known. Hence, it is, as a rule, easy to give a descriptive name by which the Fern can be identified, while in the bulk of show flowers, there are infinite grades of form and colour. This diversity renders such names impossible by their very multiplicity and fine gradation, and compli-mentary personal names become, therefore, almost the only means of distinguishing them verbally. On the other hand, as we have seen, in Ferns, the long names which embody species, varietal form and section, and perhaps finder or raiser's name, are easily shortened in practice, and hence are by no means the bugbear to the common sense which they appear to be to the ill-informed outsider. *Chas. T. Druery, F.L.S., V.M.H.*



ROYAL HORTICULTURAL.

Exhibition at Holland House.

JUNE 25, 26.

WHILE these pages are passing through the Press, the Royal Horticultural Society is holding high festival at Holland House, Kensington, the grounds of which have again been kindly placed at the Society's disposal by the Earl of ILCHESTER. Favoured with fine weather, it is to be hoped that no untoward event will interfere with the success of the show.

We cannot help reverting to the calamity of last year when the announcement of the alarming illness of the KING cast a gloom over the whole proceedings, and indeed sufficed to disperse the visitors immediately. This year the meeting is held under happier auspices; the weather is fine, the sun is attempting to break through the haze, and the pictural mansion, with its shades of grey and brown, surrounded by fine trees, looks as if it were miles away from the noise and turmoil of London.

As to the show itself, we subjoin as many details as the time will allow; but as a general impression, we may say that it is pervaded by a sense of refinement which is wanting from too many shows. Whether this is due to the fact that the exhibits are not quite so numerous, and therefore are seen to much better advantage, we cannot say. In any case, the fact remains that the Show is more refined, less blatantly commercial than is sometimes the case, and although there is no very striking novelty to record, the whole exhibition is distinctly more pleasing than usual. There is more space and more tents are available, whilst the arrangements made by the Secretary and Superintendent and their assistants for the comfort of visitors are worthy of cordial acknowledgment.

Roses, if not very numerous, are better than might have been anticipated. Orchids are displayed to better advantage than usual, and one, exhibited by M. PEETERS, of Brussels, in the shape of a finely grown white variety of Cattleya Warneri is the "sensation" of the exhibition. Messrs. SANDER & Co. show their fine Nicotiana Sanderæ × and several of the "new plants" shown by them at Ghent. Begonias and herbaceous plants are well shown.

Messrs. CHEAL, Messrs. CRIPPS, and Messrs. RUSSELL have fine collections of hardy trees outside; and Lord ALDENHAM fills one side of a long tent with cut branches of ornamental trees and shrubs, which come as a revelation of the resources of Aldenham. Messrs. CARTER have an elegant tent all to themselves filled with Gloxinias, alpines, Iceland Poppies, and annuals. Messrs. WALLACE, of Colchester, have a group of Lilies, including a fine form of Lilium auratum platyphyllum, Shirley variety. Messrs. VEITCH have many of their new Chinese plants and startling groups of hybrid Kalanchoes from Somaliland. Messrs. CANNELL'S Cannas are in familiar terms "blazers." Pentstemons are wonderful, and Verbenas Miss Willmott and King of Scarlets seem to promise a new access of popularity to these now somewhat neglected plants. But we have no intention in this paragraph to go into further detail or to trespass on the functions of the sectional reporters. Indeed, if we were disposed to do so, the exigencies of time and the printing-office would not permit it.

ORCHIDS.

The main show of Orchids was made by Messrs. SANDER & SONS, St. Albans, and the lion's share of the honours fell to their exhibits. Their magnificent group, has elegantly and artistically staged, occupied some four hundred feet, and the whole of the subjects included were of the finest quality; those entered for certificates being especially remarkable, four of the ten submitted to the committee securing First class Certificates and two Awards of Merit. These will be found enumerated in the appended list of awards. Of the other fine things noted were a number of fine forms of white-flowered Cattleya Mossiæ, including C. M. Wageneri, C. M. Reineckiana, &c. Two of the prettiest were C. M. Reineckiana The Queen, and C. M. Miss Kate Brazier, the latter a pretty white flower, with slight but distinct marking on the labellum. Some of the dark forms of C. Mossiæ were also very handsome.

Also specially noted were four grand forms of Lælio-Cattleya × Canhamiana, "Fire King" being the richest in colour, and King Edward VII. the largest and showiest; four very dissimilar forms of L.-C. × Martineti, one of them bearing fifteen flowers. Among other hybrids L.-C. × Catherinæ (L.-C. × Schilleriana × L. Lucasiana), was very pretty and distinct; varieties of L.-C. × Lady Wigan, pretty; the forms of Miltonia vexillaria very good and effective, M. v. Hindeana being pure white, with very slight purple marks at the base of the lip; Cattleya Mendeli, C. Warneri, and other showy species were represented by fine forms, and among other species remarked were Gongora quinquenervis, a fine tuft of Oncidium Janeiriense, Cryptophoranthus Dayanus, and some pretty Masdevallias; the motile-lipped Bulbophyllum barbigerum, Promenæa stapeloides, P. xanthina; a fine pair of Macodes petola, a singular greenish Spiranthes, Epidendrum Randi, E. arachnoglossum album, Cypripedium × Mathiotianum, C. × argo-Morganiæ, C. callosum Sanderæ, Angræcum, Sanderianum with three long spikes, and a number of other fine things. In the group was a plant of a Cattleya turned out of the pot to show the profusion of root in leaf-soil.

NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman), showed the very beautiful Odontoglossum crispum Sanderæ, fig. 161, which had previously secured an Award of Merit; the pretty purple-tinted flowers had their surfaces heavily blotched with reddish-orange brown; also O. crispum Sibyl, a close approach to O. crispum with an indication of O. Wilckeanum albens. Flowers white, heavily blotched with claret-purple.

JEREMIAH COLMAN, Esq., Gatton Park (gr., Mr. W. P. Bound), had a most effectively arranged group set up with fine specimens of Nepenthes and foliage plants. In it the Odontoglossums were fine, but by far the best was the noble O. crispum, "Mary Colman," a grand flower of perfect form, and with a very large dark blotch on each sepal, and an occasional small one on some of the petals. Also noted were Cattleya Mossiæ Reineckiana, and other white forms; Bulbophyllum barbigerum, two batches of brilliant Masdevallias; good examples of Odontoglossum citrosmum, and O. luteo purpureum; Cypripedium niveum, and other Cypripediums; good Oncidium macranthum, Anguloa Clowesii, Sobralia × Veitchi, &c.

The end of the central staging was well occupied by Messrs. HUGH LOW & Co., Bush Hill Park, the back of their group having well flowered Vanda Hookeriana, fronted by good Cattleyas, including fine C. Mossiæ, C. M. Wageneri, C. M. Reineckiana, and C. intermedia alba; forms of C. Gaskelliana, one of which was an exquisite novelty with very large rose-tinted flowers. Also good were Dendrobium Bensonæ, Bulbophyllum Balleyanum, Lælio-Cattleya × Epicasta, and other hybrids and species.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, had a very fine group, rich in hybrids. Among the Cattleyas were C. Mossiæ imperialis and C. M. Colossus, two phenomenally large and very beautiful flowers; a very fine lot of varieties of Odontoglossum crispum, Cypripedium × Edithæ, a very pretty Chamberlainianum cross; C. callosum Sanderæ, Lælio Cattleya × Fascinator varieties, L.-C. × Dante (L. purpurata × C. maxima), fine forms of L.-C. Canhamiana, L.-C. × Dora, and other Lælio-Cattleyas; Cattleya × Fernand Denis, Promenæa stapelioides and P. xanthina, the pretty natural hybrid Vanda × Amœna Lancheana, cream-white, slightly veined with blue, and much lighter in colour than the original.

Messrs. B. S. WILLIAMS & SON, Holloway, staged a group made up of varieties of Lælio-Cattleya × Canhamiana, the best of which was Edouard André. There was also a good show of Cypripediums, including Harrisianum superbum, exul, superbiens, &c.; also Odontoglossum cordatum aureum, Lælio-Cattleya × Hippolyta, Vanda tricolor, Lælia tenebrosa, &c.

Messrs. JAS. VEITCH & SONS, Chelsea, in their fine group of foliage plants staged a very pretty little group of hybrid Orchids, specially interesting by reason of the presence of a good specimen of Lælio-Cattleya × exoniensis of a second importation with accurately-recorded parentage (Cattleya Mossiæ × Lælia crispa), and which definitely settles a moot point. Also present were good L.-C. × Aphrodite, L.-C. × Acilia superba, the pretty yellow L.-C. × Panope (Mendeli × cinnabarina), L.-C. × Ascania, L.-C. × eximia, and Cattleya × Euphrasia.

FRANCIS WELLESLEY, Esq., Westfield (gr., Mr. Gilbert), showed a fine plant of the richly coloured Cypripedium Lawrenceanum hackbridgensis, and Lælio-Cattleya × Lady Wigan, and L.-C × Canhamiana splendens, well-grown plants, and excellently well flowered.

Awards.

FIRST-CLASS CERTIFICATE.

Cattleya Mossiæ Alexandræ, from Messrs. SANDER & SONS, St. Albans.—A grand pure white flower, with a pretty tinge of pale rose-pink on the front of the lip. One of the finest of white Cattleyas.

Lælio-Cattleya × Martineti Flambeau (L. tenebrosa × C. Mossiæ), from Messrs. SANDER & SONS.—A grand form of the rarer type of reddish yellow-petalled type of L.-C. × Martineti. Sepals and petals glowing yellowish-red; lip beautifully veined with purple.]

Cattleya × Rohersiana (Mendeli × Hardyana), from Messrs. SANDER & SONS.—A charming and fragrant flower, even more beautiful than either of the parents, and perfect in shape. Flowers white, the sepals and petals beautifully tinged with purple; the front of the lip intense ruby-purple.

Odontoglossum × Rolfeæ majesticum, from Messrs. SANDER & SONS.—The largest and finest-formed which has yet appeared. Flowers white, profusely spotted with purple of different tints.

Cattleya Warneri alba, from M. A. A. PEETERS, Brussels.—A grand, pure white form of the fine summer-flowering C. labiata Warneri, and equal in beauty to the best C. Mossiæ Wageneri. A grand spike of fine large flowers was on the plant which justly secured a Cultural Commendation.

AWARD OF MERIT.

Lælia-Cattleya × Martineti ochracea, from Messrs. SANDER & SONS.—Sepals and petals yellow; lip rose, veined purple.

Odontoglossum × ardentissimum Fascinator, from Messrs. SANDER & SONS.—A good white flower with large purple blotches in the centre of each segment. Nearer to O. crispum than others previously shown.

CULTURAL COMMENDATION.

To Mr. T. Denny, gr. to Sir WM. MARRIOTT, Blandford, for Disa × Clio, with seven stout spikes bearing numerous flowers.

GROUPS OF PLANTS, ETC.

Messrs. W. BULL & SONS, King's Road, Chelsea, London, showed a group of miscellaneous plants, chiefly of species with ornamental foliage. The magnificent Tree Ferns were greatly admired, and are shown very seldom at the Royal Horticultural Society's exhibitions. Some of the plants were 14 or 15 feet high. Amongst the general collection of stove foliage plants, Hydrangea Hortensia, H. paniculata, Verbena "Miss Willmott," showed to good advantage.

Messrs. JNO. PEED & SONS, Roupell Park Nurseries, West Norwood, exhibited a large group of Caladiums, being a similar group to that from the same firm at the Temple Show. There were very many varieties, and they were shown well.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, had a very brilliant and interesting group of plants, in which the best Cannas, Carnations, greenhouse Rhododendrons, and a great variety of choice foliage plants were represented by specimens exhibiting perfect cultivation, and they were grouped in a most tasteful and effective manner. The large Palms, Pandanus, Codiæum, Cordyline, Caladiums, Alocasias, and Ferns, were splendid, and made an excellent background for the group. A few selected Nepenthes were placed upon stands well above the other plants, and their pendent pitchers increased the effect. Nepenthes Curtisii superba is a magnificent variety, and the specimen of N. Mastersiana represented this popular variety in its true character: Lilium Henryi with its orange-coloured flowers, could be seen 8 or 10 feet high at the back of the group, blooming evidently in pots.

Mr. JOHN RUSSELL, Richmond Nurseries, Surrey, exhibited a beautiful group of stove foliage plants, including splendidly coloured Codiæums, Cordylines, Alocasias, Caladiums, &c. The plants in this group were beautiful specimens of excellent cultivation. The Alocasias in a number of varieties were capital, and the general collection was admired by a member of the Continental trade familiar with the display of such plants made at Ghent.

Messrs. H. CANNELL & SONS, Swanley, Kent, had a superb group of Cannas, which included 120 plants in sixty varieties. There was no variety of great novelty, but the finest in cultivation were represented as well as it is possible at midsummer, which is the best season for the Canna, although the plants may be induced to bloom in every month of the year. The crimsons and yellows, tastefully intermixed, yielded a striking effect. The group was edged with plants of Kochia scoparia and Adiantum Ferns.

Messrs. R. & G. CUTHBERT, Southgate Nurseries, Middlesex, made a grand display of hardy Rhododendrons, Gladiolus of The Bride section, Ivy-leaved Pelargoniums, Saxifraga pyramidalis, stove varieties of Cordyline, Boronia alata, Palms, and other decorative plants.

A very large collection of Codiæums (Crotons) was shown by Lord ALDENHAM, Aldenham House, Elstree (gr., Mr. E. Beckett). The plants varied from specimens 1¾ ft. to 4 ft. high. The plants were beautiful specimens of high colour, and all the choicest varieties were represented.

Messrs. J. HILL & SON, Barrowfield Nurseries, Lower Edmonton, exhibited a first-class group of Ferns. The principal features were two very fine specimens of Alsophila insignis, and an excellent plant of Platycerium grande. The rest was composed of well-grown plants of Davallia, Adiantum, Pteris, and other species.

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, had an exceedingly large exhibit of plants in the Orchid-tent. Excellent Ferns were shown, Platycerium grande and P. Willinckii being represented by very superior specimens; Adiantum tenerum Farleyense also was capital, and Asplenium grande, A. Herbstii, and A. scandens, with stem 18 inches high, all new or rare varieties of distinction, were good and interesting. The remaining part of the exhibit consisted of stove and greenhouse plants, among which varieties of zonal Pelargoniums were conspicuously good.

Messrs. F. SANDER & Co., St. Albans, exhibited a number of new plants, most of which were described in our reports of the exhibitions at Ghent, and in the Temple Gardens. These included Nicotiana Sanderæ, Polypodium Knightæ, Phœnix Roebelini, Dracæna Broomfieldi, Heliconia Edwardus Rex, Ficus pandurata, the pretty Selaginella Watsoniana, Dracæna Kewensis, &c.

Mr. WILLIAM ICETON, Putney Park Lane, showed a group of foliage and flowering plants, such as hardy Azaleas, Lilium longiflorum, Caladiums, Cordylines, and very strongly grown Lilies of the Valley.

Messrs. W. CUTBUSH & SONS, Highgate, staged many kinds of a dwarf strain of Begonias suited to bedding together. Also Citrus sinensis, with many fruits, masses of seedling Kalosanthes, the exquisite Verbena Ellen Willmott, the new Anemone-flowered Marguerite, Verbena King of Scarlets, very fine Heaths, and Lantanas in great variety. In another group, Malmaison Carnations were very fine, and of these we noted Lady Grimston, Nautilus, Herbert J. Cutbush, fine scarlet; R. Measures, fine crimson; Benbow, an apricot shade, very fine: Grace, blush; and Cecilia.

Messrs. J. VEITCH & SONS, showed a group of Lobelia tenuior, Rehmannia angulata, and Corydalis thalictrifolia; Kalanchoe kewensis and K. flammea, were also shown, together with the firm's strain of Streptocarpus, which represented many shades and a good strain generally.

Mr. VINCENT SLADE, Taunton, Somerset, staged a fine lot of zonal Pelargoniums in some seventy kinds and many good varieties, needless to say, of the leading commercial sorts.

Mr. R. ANKER, Napier Road, Kensington, again showed collections of small Cacti and allied plants in large numbers.

The Earl of ILCHESTER, Holland House, Kensington (gr., Mr. Chas. Dixon), exhibited a group of Cactaceous plants raised from seeds. These included species of Agave, Aloe, Opuntia, Gasteria, Mammillaria, Cereus, &c; also some very fine plants of Asparagus Sprengeri.

A group of finely developed Caladiums was staged by Messrs. J. LAING & SONS, Stanstead Nurseries, Forest Hill, chief among them Mrs. Joicey, Alexander III., with rich leaves; Madame de Halboy, veined, carmine and green blotches; candidum, white, with bright green veins; Edith Luther, Princess Olga, &c.

A small but pretty group of cut Pinks came from Mr. C. TURNER, Royal Nursery, Slough, which included such varieties of the florists' laced Pinks as Eurydice, Mrs. Dark, Duke of York, and Modesty; and of border varieties, Mrs. Lakin, Mrs. Sinkins, and Snowflake, all white; Ernest Ladhams, Lizzie Duval, Pheasant-eyed white, with a dark centre, and fringed edges to the petals; and the old Anna Boleyn, bright rose, with dark centre—one of the best of the border varieties.

Mr. T. N. BRADLEY, Chingford, sent two Pinks for the Floral Committee, one a white variety, bearing the name of Albine, which is unfortunate, there being already one bearing the name of Albino; and Addie Elsdon, very like Ernest Ladhams, but rather more colour.

Asparagus myriocladus was finely shown by the RANELAGH NURSERY CO., Leamington. The young growth is particularly handsome, and it makes an excellent decorative plant.

Messrs. H. LOW & Co., Bush Hill Nursery, Enfield, sent two new varieties of Carnations for the Floral Committee, both white Malmaisons, one Lilian Hopper, and the other Lady Annette; but they had but one bloom each.

Eurycles Cunninghami was staged by Sir TREVOR LAWRENCE, Bart., Burford Lodge, Dorking (gr., Mr. W. Bain). The cut specimen was represented by a large truss of large, white, Lily-like blossoms.

Cynoglossum furcatum (India) also came from Mr. BAIN. The small, blue flowers were freely produced, and the cut specimen suggested a plant somewhat of tall growth.

Messrs. T. S. WARE, Ltd., had a collection of Roses, chief among them Rubino, Empress Alexander of Russia, Madame Gabrielle Luizet, Mildred Grant, Frau Karl Druscki, Ma Tulipa, Madame Louise Poncet, Prince de Bulgaria, Sunrise, Leonie Lamesch, Eugenie Lamesch, Liberty, Mrs. J. Laing, Corallina, double-white Rugosa, General Jacqueminot, T. Souvenir de W. Robinson, Souvenir de Jean Ketten, &c.

A very profuse show of flowering sprays of the new Pink Rambler Dorothy Perkins was shown by Messrs. HOBBIES, LTD., Dereham, Norfolk.

An exhibit of cut flowers of varieties of Carnation, from Mr. A. F. DUTTON, The Nurseries, Bexley Heath, was of the highest quality. The varieties were Madame Melba, Mrs. Thos. W. Lawson, G. H. Crane, and Royalty.

BEGONIAS.

Collections of Begonias afforded brilliant patches of colour, and in the case of the leading collections very fine quality was to be seen. Especially was this true of the group staged by Messrs. BLACKMORE & LANGDON, Twerton Nursery, Bath, double varieties of superb quality largely preponderated. Prominent was Countess of Warwick, deep yellow, broadly margined with glowing orange, very fine form (Award of Merit). M. J. Desloges, glowing carmine-pink, very fine; Avalanche, white, reminding one of large, white rosettes; Duke of Connaught, glowing crimson; Seagull, white; Marchioness of Bath, large white; Miss Wilmot, bright scarlet, large; A. J. Balfour, bright shaded crimson; Mr. S. Pope, pale ground, bordered with rose; and The General, bright scarlet. There were also a few fine single varieties, but they had not been named at the time of inspection.

Messrs. B. R. DAVIS & SON, nurserymen, Yeovil, had a large group, not so far advanced in bloom as that of Messrs. Blackmore & Laugdon, still showing signs of fine quality, chief among them were W. Sparshott, large, bright, double scarlet, very fine in colour and petal (Award of Merit); Gipsy Girl, a charming single-crested variety, a mixture of white, cream, and pink (Award of Merit); Marchioness of Bath, double white; Spotted Beauty, delicate carmine, blotched white; Mrs. Mildred, double, delicate rosy-salmon; Duchess of York, double orange; Lady Cromer, double white; The Queen, bright yellow, shaded deep orange; British Queen, large, single white, &c.

Messrs. B. PEED & SON, nurserymen, Lower Norwood, also had cut blooms of single Begonias of good quality.

Messrs. J. LAING & SONS staged a small group of double and single Begonias, chief among them The Queen, a distinct and fine novelty (see Floral Committee Awards); Butterfly, rich carmine, the side petals feathered with white; Princess Beatrice, white; the single varieties predominating.

GLOXINIAS, ETC.

Messrs. J. PEED & SONS, Nurserymen, Lower Norwood, had some well grown specimens in pots, chief among them being Howard Peed, pale rosy-crimson, margined with white, and white throat; Empress of India, large purple; Mrs. John Peed, white throat and pale base to the petals, broadly edged, bright pale violet; Countess of Warwick, white throat, edged pink; Miss Weaver, rose spotted; and C. Young, bright crimson. Boxes of Begonias and Streptocarpus, with an edging of plants of Sibthorpia europæa var. aurea were also shown.

Messrs. J. CARTER & Co., High Holborn, London had all their exhibits in a separate tent provided by themselves. There was an excellent group of Gloxinias, whose big bright flowers appeared unusually vivid with the sun's rays upon them; another group of the pink-flowered Verbena hybrida "Miss Willmott," finely cultivated Mignonette in pots, and cut flowers of Iceland Poppies, and other hardy flowers. The Poppies were very fine, the white, yellow, and orange-red coloured flowers being very large in size, and bright in colour. Irises, Pæonies, &c., were shown, and alpine plants upon a miniature rockery, and Japanese dwarfed trees.

SWEET PEAS.

A collection of some sixty five bunches in about forty-five varieties, was staged by Messrs. JONES BROS., nurserymen, Shrewsbury, who had a few seedlings; one named James Vine appeared decidedly promising, with bright orange-scarlet standards and soft purple keel. Of standard varieties there were excellent representatives of Countess of Radnor, King Edward VII, Pink Friar, a charming variety; Princess of Wales, Coccinea, fine in colour; Countess of Lathom, Mrs. Dugdale, Jeanuie Gordon, Lady Mary Currie, Lady Grizel Hamilton, gorgeous, very bright; Dorothy Eckford, a very fine white; Hon. F. Bouverie, Miss Willmott, Lord Kenyon, Alice Eckford, Lady M. Ormesby Gore, &c. As a background of the tastefully arranged vases, was a line of large bunches of Spanish Iris, aud between each a vase of foliage of Eryngium, which was very effective; at the side was a panel of bunches of Spanish Iris, tastefully set up with grasses.

CUT HARDY TREES AND SHRUBS.

A most notable exhibit of these came from Lord ALDENHAM, Aldenham House, Elstree (gr., Mr. E. Beckett). This was unique in its way, and comprised about 350 bunches in many varieties; chief among them as representing the most rare were Quercus cerris argeutea variegata, Amygdalus orientalis, Ceanothus dentatus, Acer Simon Louis Frères, A. diabolicum, Euonymus aureus variegatus, Sophora japonica variegata, Potentilla fruticosa, Berberis fuchsioides, Laburnum monstro sum, Fraxinus excelsior aucubæfolia, Ononis rotundifolia, Ostrya quercifolia, Acanthopanax alho-marginata, and Castanopsis chrysophylla, with flowering varieties of Weigela, Kalmias, &c.

HARDY PLANTS AND FLOWERS.

Messrs. BARR & SONS, Covent Garden, set up a splendid lot of hardy flowers, in which Irises and Pæonies were prominent items. The single Pæonies were especially beautiful and showy in their many tints, and not less so the double kinds. In addition to this the Japanese Iris, I. Sieboldi, and the English and the Spanish Iris were conspicuous. Early Gladioli were charming and good, while Ixias, Lilies, and the showy forms of Iris Monspur made quite a display alone. The Messrs. BARR also staged a large lot of Pigmy trees, many of great age.

Messrs. BUNYARD & Co., Maidstone, had Irises, Pæonies, Campanula muralis, C. V. Houttei, with Lilies, Lychnis, Geums, and other showy things in abundance.

The Pæonies and Larkspurs from Messrs. KELWAY & SONS, Langport, were resplendent in beauty, and both groups replete with the best things. Of Pæonies, Grisel Muir is a noble white; Mountebank, good single, white; Sir T. Lipton, lake. Of Larkspurs we select Gilbert and Queen Alexandra as the best in light blues, with the Rev. W. Wilks in the purple shades. The whole array was indeed fine.

Messrs. CANNELL & SONS, Swanley, had a bright lot of their hybrid Columbines in much variety.

Hardy flowers from Mr. PRICHARD, Christchurch, Hants, were good indeed. In a large lot we noted masses of Japanese Water Iris in great variety of colour, Potentillas, Pæonies, Poppies of the oriental group; with Campanulas, Phloxes, Ixias, Stenactis speciosa, and its variety superba. These are but a few in a large and finely-arranged lot.

Mr. W. B. CHILD, Acocks Green, Birmingham, showed hardy flowers in plenty, Lilies, Heucheras, Poppies, Lupins, Inula glandulosa, and other seasonable things.

Mr. R. C. NOTCUTT, Broughton Nursery, Ipswich, had a fine display, in which Papaver nudicaule aurantiaca was a notable feature. Pæonies, Pyrethrums, Papaver Lady Roscoe, a fine Eastern Poppy of a red-salmon hue, was very fine; Tropæolum polyphyllum, with Pæonies, Thalictrums, Dictamnus, and Heuchera sanguinea were also well shown in this lot.

Mr. T. S. WARE, Ltd., Feltham, set up a large array of hardy things, Lilies, Cornflowers, Irises, Pinks, Delphiniums, Campanulas, Ixias, Lychnis, Iris gigantea, Geums, and most of the bright and showy things in season.

Mr. C. TURNER, Slough, staged in pots a nice collection of Pinks, selfs and laced kinds being included in a collection of some eighteen or more kinds.

Messrs. WALLACE & Co., Colchester, surpassed themselves on this occasion, not only in the fine array of good things, but equally in the manner of arrangement. The Calochorti, Brodiæas, Ixias, of which alone some forty kinds were set up, were a feast alone. In another direction, the Lilies attracted much attention, and not unjustly, when we mention L. excelsum, L. longiflorum giganteum, L. Henryi, the giant L. platyphyllum, Shirley variety, with massive white flowers, as among these plants. Lily of the Valley was grand, while Irises, Heucheras, Pæonies, the inimitable Sparaxis Fire King, were other things in this highly important group.

Phloxes, Antirrhinums, and Pentstemons, were finely shown for forced plants by Mrs. J. FORBES, Hawick. We cannot say the flowers, or even the trusses, were equal to those grown in the open, but for this early date they were good. There were many named varieties in each set.

Mr. J. BOX, Croydon, showed a small arrangment of Sedums, Saxifrages, and such plants among stones to form a rockwork.

White Sweet Peas in variety came from Mr. R. SYDENHAM, Birmingham.

Messrs. W. BULL & SONS, Chelsea, showed Spanish and English Iris, together with Anemones, Ranunculus, and other such things in the more showy florists' flowers. Many varieties were shown, and good flowers generally.

Mr. AMOS PERRY, Winchmore Hill, contributed a large assortment of the more showy hardy things, such as Heucheras, Poppies, English and Spanish Iris in variety, Campanula muralis, Lychnises, a charming variety of Ixia, with the earlier Kniphofias, Ourisia coccinea in great profusion, and many more. Possibly the Water-Lilies were Mr. PERRY'S strong point, and of these we noted W. Falconer, Lucida, Marliacea albida, tuberosa rosea, Marliacea carnea, Aurora, tuberosa Richardsoni gloriosa, Chromatella, Fœbelli, and lucida, were the most conspicuous of a fine lot.

Messrs. PAUL & SON, Cheshunt, showed Pæonies in variety, with many hardy herbaceous species, and cut shrubs in variety.

Messrs. GEO. JACKMAN & SONS, Woking, had a fine grouping of Pæonies, Pyrethrums, Larkspurs, hardy Cypripediums, and Pinks; the pretty Bletia hyacinthina, Campanula carpatica pallida, Kalmia myrtifolia, Saxifraga Macnabiana, very fine in the freely-spotted panicles; Dianthus Napoleon III., very rich; with Incarvilleas, Campanula mirabilis, and others, contributed to a most showy group.

Messrs. B. S. WILLIAMS & SON showed Verbena Ellen Willmott, and a large array of Spanish Irises in bunches.

Violas and Pansies from Messrs. DOBBIE & Co., Rothesay, formed a gay group. These were quite a feature in the exhibition, fresh and beautiful to the eye, and in the early part of the day they displayed a brightness that is most acceptable in these plants. Hybrid Columbines in their great variety were also well shown.

Mr. GEO. REUTHE, Keston, Kent, showed a small group of hardy and alpine plants. The most interesting plants perhaps, were contained in a group of Eremuri at one end. This set contained E. Warei, of a citron shade; E. Bungei præcox, E. robustus, E. r. Elwesianus, E. aurora, and E. Mrs. Reuthe, of a tawny-yellow tone. These forms represented a wide range of colour, and demonstrated the possibilities awaiting the hybridist in this direction. Ixias, Pæonies, Iris Susiana, Campanula muralis, C. thyrsoides, Cinandra ramondioides, Phyteuma cimosum, with hardy Cypripediums and Primula capitata, were well shown.

Messrs. HOBBIES, LTD., Dereham, showed Violas in large numbers, as magnificent Blue, White Beauty, Bullion, a fine yellow; and Ardwell Gem, a soft yellow; Sidney, a soft yellow, quite a rayless flower, is very fine among yellows. Sweet Peas by the same firm were well shown with natural foliage, and in their grand masses made a fine display.

Messrs. J. LAING & SONS had a collection of Streptocarpus, Verbena Miss Willmott, a group of finely coloured plants of Saxifraga sarmentosa tricolor superba, bunches of hardy flowers, &c.

Messrs. T. S. WARE, Ltd., nurserymen, Feltham, had a large bank of hardy plants and cut flowers, among them Romneya Coulteri, Ostrowskia magnifica alba, Lilium pardalinum minor, Hypericum gracilis (orientale × olympicum), Pæonies, Campanulas, Iris, Triteleia laxa, Ixias, Sidalcea candida, forms of Papaver, Sarracenias flava and Drummondi, Darlingtonia californica, &c.

EXHIBITS OUT-OF-DOORS.

There being no lack of space on the greensward, there were several very large groups of trees and other plants that screened the sides of the tents to some degree, and made the view more agreeable than it would otherwise have been.

Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, N., had a very extensive display of their clipped trees in tubs, varying from specimens 2 feet high to others 10 feet or 12 feet high, and imitative of a great variety of subjects.

Tree Ivies in pots formed a very interesting exhibit from Mr. JOHN RUSSELL, Richmond Nurseries, Surrey. The varieties were exceedingly numerous, some with green leaves, and others variegated with green and yellow. There were particularly pretty standard specimens of Hedera arborea flavescens, the majority of the leaves being a bright gold colour.

Messrs. THOS. CRIPPS & SON, Tunbridge Wells, Kent, showed an extensive group of Japanese Maples, and other ornamental pleasure-ground plants. There were unusually fine examples of Acer palmatum palmatifidum, standards 6 or 7 feet through, whilst bright colour was afforded by the red-coloured A. palmatum dissectum purpureum sanguineum, and a japonicum aureum. A basketful of plants of Orchis foliosa, 18 ins. high, were very strong with vigorous leaves and stout flower-spikes.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, Sussex, had also an extensive collection of picture plants, including some of the best trees and shrubs, flowering and ornamental, Kalmias, Veronica newryensis, Philadelphus Lemoinei erectus, Hydrangea Hortensia Mariesii, Cistus salviæfolius, Rhododendron "The Warrior" (a fine variety, of deep red colour), and many other attractive plants, including Conifers, were comprised in the exhibit.

Messrs. JOHN WATERER & SONS, Bagshot Nurseries, Surrey, exhibited hardy ornamental shrubs in pots and tubs, and a glorious group of Kalmia latifolia, some dozens of plants, 1 foot to 2 feet high, each of them profusely covered with their pretty pink-coloured flowers. Amongst some Rhododendrons the varieties, Mrs. John Kelk, bright rosy-red colour; Countess of Tankeville, pink, with whitish centre; and B. W. Elliott, red with bold spotting, were excellent.

Messrs. W. FROMOW & SONS, Sutton Court Nursery, Chiswick, W., had another collection of trees and shrubs in great variety, but placed rather too closely together for each to be seen distinctly. Kalmia latifolia was again evident here, and a great variety of flowering species, and others with ornamental foliage, were included.

Messrs. JAS. VEITCH & SONS, Ltd., Chelsea, exhibited a dozen and a half handsome plants of Sciadopitys verticillata, some of them 12 feet high, in tubs; also a collection of varieties of Delphiniums in pots. There were about two dozen varieties, and the plants had been cultivated in the pots for six months past. Crœsus, Priam, Ben Davies, and Ulysses, were excellent varieties of deep purple colour; and Doris, Neomie, P. Laird, Belladonna, were good pale-coloured sorts.

COMPETITIVE ROSES.

The most sanguine rosarian could hardly have expected a good show of blooms, after the weather we have experienced. Writing after the event, it may be said that it was very poor, and there was hardly a single good bloom of an exhibition variety staged. The decorative varieties were good.

AMATEURS.

The first class for twenty four blooms, distinct, was won by Mrs. HAYWOOD, Woodhatch Lodge, Reigate (gr., Mr. C. J. Salter). His best specimens were blooms of Clara Watson and Cleopatra; 2nd, A. HILL GRAY, Esq., Newbridge Hill, Bath.

O. G. ORPEN, Esq., West Bergholt, Colchester, had the best collection of twelve varieties, and Maman Cochet, and its white variety, were quite the best specimens; 2nd, T. B. GABRIEL, Esq, Hart Hill, St. Johns, Woking.

The best exhibit of six blooms of any one variety of H. P., H. T., or H. B, was one of the variety Mrs W. J. Grant, from CHAS. LAMPLOUGH, Esq., Chatteris, Cambridgeshire; O. G. ORPEN, Esq, being 2nd, with the variety La France, but sadly out of character.

The best exhibit of 18 blooms of Teas and Noisettes, was from A. HILL GRAY, Esq. The flowers were small but a conspicuous exception was found in a bloom of Edward Mawley; O. G. ORPEN, Esq., was 2nd.

In the next class for twelve blooms, there was only one exhibit, and the 1st prize was therefore awarded to T. B. GABRIEL, Esq.

For six blooms of one variety, O. G. ORPEN, Esq., was the best exhibitor, showing White Maman Cochet.

O. G. ORPEN, Esq., Hillside, West Bergholt, Colchester, won the 1st prize for eighteen bunches of garden Roses, in which the variety Reine Olga de Wurtemburg, was very brilliant and lasted well.

The 1st prize for a bowl of Roses was awarded to one of red single flowers shown by Miss BEATRICE H. LANGTON, Raymead, Hendon; and the 2nd prize to O. G. ORPEN, Esq., who had single Roses of cream and pink-coloured varieties, which, in our opinion, was the more tasteful arrangement.

OPEN CLASSES.

The principal class was for forty-eight single blooms, and it was won by Messrs. FRANK CANT & Co., Braiswick Nurseries, Colchester. The new Rose Lady Battersea, and Mrs. Cocker were fairly good; 2nd, Messrs. D. PRIOR & SON, Colchester.

In the open class for eighteen blooms of Teas or Noisettes, Messrs. D. PRIOR & SON, Colchester, were 1st, and showed a collection of small flowers in which Catherine Mermet, Bridesmaid, and The Bride, were the best. A bloom of Anna Olivier was very much below exhibition standard; 2nd, Mr. GEO. PRINCE, Longworth, Berks.

The best collection of twelve Rugosa or Bourbon varieties or hybrids was from Messrs. PAUL & SON, Cheshunt. The bunches were very fine, and the flowers lasted surprisingly well. 2nd, Messrs. F. CANT & Co.

The best collection of thirty-six bunches of garden or decorative varieties, was shown by Messrs. F. CANT & Co., Braiswick Nurseries, Colchester, and at this show these varieties were certainly most attractive. Not only were there "garden" Roses in this exhibit, but such of the Teas and Noisettes that are not included in the National Rose Society's list of exhibition varieties might be included; 2nd, Messrs. B. R. CANT & SONS, The Old Rose Nurseries, Colchester.

Messrs. B. R. CANT & SONS, had a nice collection of single Roses, and was awarded 1st prize; Messrs. F.

CANT & Co. being 2nd. These beautiful single Roses lasted very well, and were quite fresh at the close of the first day.

Nine bunches of China Roses and their hybrids were shown well by Messrs. FRANK CANT & Co., and this section, of which Queen Mab, Irene Watts, are examples, are exceedingly pretty.

The 1st prize in a class for representative groups of Roses in pots was won by Mr. CHAS. TURNER, The Royal Nurseries, Slough. In this exhibit there were very beautiful standard plants of such varieties as Auguste Barbier, Alberic Barbier, Réné André, &c.; also a few plants of hybrid perpetual and Tea varieties, faced with a quantity of cut blooms of various sorts. The 2nd prize was won by Messrs. PAUL & SON, Cheshunt, in which group there were several fine plants of the somewhat singularly-habited Rugosa repens alba, and other attractive varieties. The brilliant new Tea variety Lady Battersea was represented by a number of small plants, and there was a wealth of cut flowers of decorative varieties. The hybrid Briar Una, with pure white flowers 4 inches across, was one of the gems in this group. Mr. GEO. MOUNT, of Canterbury Nurseries, Kent, had 3rd prize.

Awards by the Floral Committee.

Lilium auratum platyphyllum (Shirley var.).—This, to say the least, is a most pronounced form of this fine Lily. The plant is of great stature, fully 6 ft. high, and has giant, white, golden-banded flowers of remarkable substance. It is noteworthy that this particular stock has all been raised from a single bulb purchased years ago. At Shirley its boldness and grandeur are quite a feature in the garden. Shown by Messrs. WALLACE & Co., Colchester (First class Certificate).

Pæonia Dawn.—A semi-double kind of a rosy pink hue, and with a tuft of golden petals in the centre; a most exquisite kind. From Messrs. WALLACE & Co., Colchester (Award of Merit).

Carnation Lady Wolverton (Border).—A fine Carnation of a rich salmon-rose shade; the handsome flowers are very large and nicely perfumed; a fine addition to good Carnations.—From Messrs. CUTBUSH & SONS, Highgate (Award of Merit).

Carnation Shiela.—A yellow ground, fancy border kind, flaked, and bordered with crimson; a good sized bloom. From Messrs. CUTBUSH & SONS, Highgate (Award of Merit).

Iceland Poppies—Messrs. STORRIE & STORRIE, Dundee, showed a very fine strain of Iceland Poppies. The strain now includes flaked forms in the orange and yellow shades, while some intermediate colours include cream, yellow, fiery red, &c. The striped forms are very curious and interesting, and now that a break has occurred, may lead to some remarkable forms (Award of Merit).

Eremurus "Mrs. Reuthe."—A cross between E. Turkestaniens and F. Bungei. The colour is soft pale lemon shade, and the plant is a very pleasing addition to this group. Shown by Mr. REUTHE, Keston, Kent (Award of Merit).

Delphinium Monarch.—A variety with deep violet-purple flowers, and a dark bee centre; the spike is handsome and well formed. From Mr. R. C. NOTCUTT, Ipswich (Award of Merit).

Papaver orientale Lady Roscoe—A form of the oriental Poppy, of a deep salmon-scarlet, with a dark blotch; the flowers are very handsome and showy. From Mr. R. C. NOTCUTT, Ipswich (Award of Merit).

Delphinium Rev. W. Wilks.—A fine form, in which the individual flowers are of great size; the colour is deep purple, with dark centre, and the fine spike is well-proportioned. From Messrs. KELWAY & SONS, Langport (Award of Merit).

Lilium Kelloggii.—A very charming species, coming midway between L. rubescens and L. pardalinum. The reflexed flowers are of rosy hue, and heavily spotted. It is a very pretty kind. From Messrs. BARR & SONS, Covent Garden (Award of Merit).

Nicotiana Sanderæ.—This is described as a hybrid from N. ruhra and N. affinis. The flowers are rich pink colour, and are produced upon inflorescences similar in habit to those of N. affinis. The foliage is also very much like that of N. affinis. We could not detect any fragrance, but it has perfume at night, and the plant will be highly valued for its rich colour, and will intermix with plants of N. affinis very effectively. Shown by Messrs. F. SANDER & SONS, St. Albans (Award of Merit).

Begonia (single) The Queen.—A large and finely formed flower; cream, suffused with delicate salmon, and rich orange in the centre. From Messrs. J. LAING & SONS Award of Merit).

Begonia (double) Countess of Warwick.—Deep yellow, broadly margined with glowing orange; very fine form, and quality of petal. From Messrs. BLACKMORE & LANGDON (Award of Merit).

Begonia (double) W. Sparshott.—Large bright scarlet, very fine shell petal.

Begonia (single) Gipsy Girl.—One of the crested varieties. White, tinted cream and delicate pink.

The two foregoing, from Messrs. B. R. DAVIS & SON, received Awards of Merit.

FRUIT.

This was poorly represented, much the finest exhibit being a collection of thirty trees in pots, sent by Messrs. RIVERS & SONS, Sawbridgeworth; including finely-fruited trees of Peaches Princess of Wales, Thomas Rivers, Sea Eagle, and a beautiful variety, Belle Beauce, with fruits richly coloured and abundant; Nectarines Early Rivers, Victoria, and Cardinal; and Cherries, some of the trees very tall, and heavily fruited—Early Rivers, black; Empress Eugénie, Elton, May Duke, Lemister de Burr, reds; and Governor Wood, white.

Messrs. HUGH LOW & SONS, Bush Hill Park, London, sent three fine Fig-trees in tubs, White Marseilles (two), and one Brown Turkey; these were well fruited; also three Vines in 10-inch pots, carrying from eight to ten bunches, of Gros Colmar, Lady Hastings, and Syrian.

LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House (gr., Mr. James Hudson, V.M.H.), staged five boxes of Plums, each containing twenty-five fruits, and all superb examples. The varieties were Kirke's, Reine Claude de Comte Althem, Transparent Gage, Early Transparent Gage, and Jefferson's.

The Countess of PORTSMOUTH (gr., Mr. R. Perry) sent a dish of remarkably fine Black Tartarian Cherries, from Hurstbourne Park, Hants.

Baron NATHANIEL DE ROTHSCHILD, Hope Warte, Vienna (gr., Mr. J. Roberts), sent a large Queen Pine; and from the HORTICULTURAL COLLEGE, Swanley, came two Melons—one white-fleshed, named Swanley No. 1, very sweet, but yet unripe; and College Favourite, a pretty netted fruit, having scarlet flesh, but not yet ripe. It was asked that other fruits be sent later.

VEGETABLES were not represented.

Horticultural Sundries.

An entire tent was devoted exclusively to these objects, and exhibitors were numerous. Messrs. CHAMPION & Co., City Road, London, exhibited samples of stout wooden tubs, of diverse sizes and shapes, all finely finished, for holding Ferns, Palms, Orange trees, &c.

Messrs. S. & E. COLLYER, Reading, showed very fine terra-cotta vases, pedestals, edging tiles, flower pots, window boxes, seakale pots, and other useful objects.

Mr. J. GEORGE, Putney, had on his stand samples of Orchid peat and loam, Mushroom spawn, Mushrooms, Thompson's Vine and plant manures, various fumigating compounds, and other requisites.

Messrs. JAS. GREEN & SONS, Queen Victoria Street, City, showed Munstead flower vases and glasses in various forms and colours; also wire supports for flowers.

Messrs. D. DOWELL & SONS, Ravenscourt Park, London, had in one stand a large collection of pottery vases, plant and Orchid soils, water-pots, moss, raffia, plant sticks, and other material; and on a second stand a big exhibit of Ohlendorf's guano.

Messrs. LEE & Co., Maidstone, had bottling fruit appliances, including a sample sterilising kettle, bottled fruits, caps, &c.

Mr. W. BOWEN, Halstead, Sevenoaks, showed stout tree and Rose-stakes, sticks, charcoal, and various woodwork for garden uses.

Messrs. W. WOOD & SONS, Wood-Green, had a very fine stand of sundries prettily decorated with cut flowers. The materials staged included garden hose of various kinds, all up to date; lawn-mowers, manures, peat, loam, bamboos, and many other things.

From the STANDARD MANUFACTURING COMPANY, Derby, came various tree-pruning implements on long handles, and short hand-pruners of diverse forms, all of great interest and use.

The HULL MANUFACTURING COMPANY showed in tins and bottles the Humber Brand Bitter Oil for tree and plant spraying.

Messrs. PULHAM & SONS, the well known rockwork constructors of London, sent stone and ware vases, pedestals, and numerous illustrations of their materials as employed for garden decoration.

Mr. JOHN PINCHES, Camberwell, had a stand of wire arches for gardens, edgings, &c.; also in great variety tree and plant labels of every diverse and enduring character.

JUNIFLORIS DEPARTMENT, 95, High Holborn, made a pretty show with their fragrance mixture in packets and bottles. This liquid is intended to impart perfume to cut flowers.

Messrs. BURGOYNE, BURBIDGE & Co., Coleman Street, London, showed largely their Beetlecute, for the destruction of insect vermin.

Messrs. OSMAN & Co., Commercial Street, London, had a large display of flower-boxes, vases, grasses, knives, Syringes, Mushroom-spawn, baskets, labels, &c.

Messrs. H. HERBERT & Co., Hop Exchange, London, put up manures, insecticides, peat, raffia, syringes, and other useful articles, including thermometers and Jadoo-fibre.

Mr. W. G. PARKIN, Sheffield, sent flower-vases dressed with flowers; and Mr. J. WILLIAMS, Oxford Road, Ealing, showed similar objects, but in his case charmingly decorated with flowers, making quite a pleasing display.

ROYAL AGRICULTURAL.

SPECIAL interest attaches to the exhibition this year, inasmuch as it marks a distinct change in procedure. The provincial shows having, generally speaking, resulted in financial loss, the Society has taken the bold step of acquiring some 100 or more acres in the neighbourhood of Willesden, for the purpose of holding their show in that locality in perpetuity. The smaller provincial towns cannot, as is proved by experience, furnish a sufficient number of visitors to make the shows profitable. We shall watch the experiment with great interest. In the meantime, we may say that the weather—so very important a factor—was fine on the three first days; and considering all things, the London clay was not so objectionable as it might well have been.

We are not concerned here with the purely agricultural displays, but we may say that the exhibition, as a whole, is a vast object-lesson; and if the commercial element rather overrides the instructional departments, the commercial element itself is an object-lesson on a large scale. Still, if we want to look ahead, and see what is in store for us in the future, we must turn rather to the modest educational exhibits than to the more conspicuous trade displays.

A separate pavilion is devoted to the Educational exhibits, and most interesting they are. There are specimens of turf from various pastures with and without manures, which are most instructive. There are tables and diagrams from Rothamsted, Woburn, Chelmsford, the Yorkshire College, the Harper Adams, the Wye College, the Durham College of Science, and elsewhere. There are mildewed Gooseberries and Hops, there are pictures of insect pests and of fungus destroyers. We cannot specify the exhibits in detail, but if any visitor desires to profit by the results of recent experiment and the discoveries of recent science, let him spend the day in that pavilion. The agriculture of the future, so far as plant-culture is concerned, is centred in that modest pavilion.

As to cattle, horses, pigs, poultry, and machinery, they are not in our department, but we must not fail to call the attention of gardeners and others to the motor lawn-mowers of Ransome & Co. Here, again, we have a forecast of the future. Exhibits of a purely horticultural character are, of course, not expected; nevertheless, the visitor will be attracted by the fine display made by Messrs. SUTTON, who show amidst agricultural seeds, groups of annuals, Gloxinias, Peas in pots, Potatos, and glowing Tomatos as a background.

Messrs. CARTER have a similar pretty group, with grasses and Clover in growth, Mangolds and young annuals in flower.

Messrs. WEBB are slightly more utilitarian, showing their seeds in sacks. Vegetables and Spanish Irises are intermixed with Gloxinias to make a gay display.

Messrs DICKSONS, of Chester, mix a group of Lilium longiflorum with manures, and other less attractive but more useful exhibits.

The ONE-AND-ALL COMPANY show Cotton-cake, sacks, manures, Tomatos, and Begonias, together with the numerous odds and ends of a seedsman's and sundriesman's stores.

DICKSON, BROWN & TAIT, of Manchester, have also a utilitarian exhibit, mixed with Sweet Peas, grasses, and Clover in growth.

Messrs. GARTON, Newton-le-Willows, have made a name for themselves in cross breeding and selecting agricultural plants, and the results they show are highly instructive.

Mr. JOHNSON, of Ealing (close by), shows Mushrooms and Mushroom-spawn.

Messrs. HORNE & SONS show Northern Star and Sir John Llewelyn Potatos in growth, with Comet Currants and Strawberries.

By the time the visitor has inspected these exhibits a glass of Bulmer's dry cider is not unacceptable, but we wonder where the Apples are to come from this season. Messrs. HARRISON, of Leicester, are close at

hand with fine samples of agricultural seeds, Potatos, Broccoli, &c.; Messrs. KING, of Reading, have seeds and Mangolds; and Messrs. DICKSON & ROBINSON, of Manchester, have a large exhibit of seeds, Potatos, grasses in growth, Irises, Mignonette, Miss Willmott Verbena, and early Gladioli, among which Lucretia and Peach-bloom are specially remarkable.

Messrs. LITTLE & BALLANTYNE show us more sacks and more seeds, but among them is a fine new Holly called Golden King, with bold green leaves, deeply margined with golden-yellow; the young shoots purplish. Picea pungens glauca is striking in the back ground.

Greenhouse builders are represented by Messrs. BOULTON & PAUL, MESSENGER, DUNCAN TUCKER, and other exhibitors—but here we must stop.

We can only mention a minute fraction of the exhibits, but we may advise all who can to visit the exhibition, which can be reached in a very short time either by the Great Western or District Railways.

GRAND YORKSHIRE GALA.

JUNE 25.—The 45th Exhibition was opened in the Bootham Field on the above date. It was fine on the opening day. On the whole there was a fine lot of exhibits, considering the very inclement season. The central group in the open tent was not so good as in some bygone years, though there were some plants of exceptional merit.

GROUPS.

Miscellaneous Plants in or out of bloom, for effect, not to exceed 30 sq. feet.—There was a splendid exhibition in this very necessary part of North-country exhibitions. No striking departure was noted in the methods of arrangement. JAS. BLACKER, Esq., Selby (gr., Mr. W. Curtis), was 1st. It is only a few years since this gentleman began his horticultural career, and his successes at the York shows have been striking. 2nd, Mr. J. SHARP, of Almondbury; Messrs. W. ARTINGDALE AND SONS were 3rd.

These groups formed a very important and instructive exhibition in themselves; still, it is to be hoped that at York, at any rate, exhibits by amateurs and gardeners will always take prominent place. The Holland House Show no doubt weakened the exhibits in some classes, the trade exhibits of Orchids more particularly.

SPECIMEN PLANTS.

These made a fine show, and the honours in each class were divided between Mr. JAMES CYPHER and Col. HARRISON BROADLEY in the order named.

For the tables of plants there were two competitors, both good, though Mr. J. CYPHER, of Cheltenham, was easily 1st. At the back were placed two festoons of Asparagus plumosus, from which arose spikes and sprays of Cattleyas, Cypripediums, Odontoglossum crispum, the plants in the front consisting of the leading genera in choice species and varieties. The whole formed a very pretty picture. Sir JOHN ROBSON, of Bowden, was 2nd.

In the class for 10 specimen Orchids, Mr. CYPHER was again 1st with Brassavola Digbyana, Cattleya gigas, Mossiæ and Warneri, and Mendelli, Lælia tenebrosa, Epidendrum prismatocarpum, and Cypripedium Curtisii. Mr. J. BOWDEN was 2nd.

The same exhibitors were in the same position in the class for six and three orchids respectively. In the class for six specimens, not made up, to be grown and exhibited by amateurs, Mr. W. BATEMAN (gr., Mr. Rawlinson) was 1st; Mr. W. P. BURKINSHAW (gr., Mr. Barker) was 2nd. The latter gentleman is 1st for four orchids (special prize) and 2nd for three. All his Cattleyas were of the choicest species and hybrids, and the plants generally well grown.

Pelargoniums.—This is the first York gala for 40 years when there were no exhibits in this class. At one time they were a leading feature. In the class for zonals and ivy-leaf varieties there were a few good exhibits. Mr. H. PYBUS, Ripon, was 1st for 12; Mr. J. SUNLEY, Milford Junction, was 2nd; the former being 1st for six single-flowered and also for six double-flowered varieties.

Roses.—The competition in pot-grown roses was not good, but in the cut-flower classes it was better, though not keen. For 72 roses Mr. G. MOUNT, Canterbury, was 1st; 2nd, Messrs. R. HARKNESS and Co., Hitchin, who were 1st for 48.

In the class for 36 Mr. G. MOUNT, Canterbury, was again 1st; Mr. J. D. HUTCHINSON 2nd.

Mr. G. MOUNT is 1st for 24 and 18 all distinct.

The latter were perhaps the cream of the show. The varieties were Prince Arthur, Mrs. Sharman Crawford, General Crawford, Captain Hayward, Mrs. John Laing, Margaret Dickson, Caroline Testout, Liberty, Catherine Mermet, Ulrich Brunner, Bessie Brown, Annie Clive, Madame Luizet, Prince Camille de Rohan, Mrs. W. J. Grant, and La France.

Roses, Amateurs.—Mr. J. S. HUTCHINSON was 1st for 18 and 12.

For a basket group of Roses Mr. H. PYBUS was 1st.

A splendid group was exhibited by Messrs. WALSHAW, of Scarborough, who were easily 1st.

CARNATIONS.

Group of Carnations.—1st, Mr. JOHN ROBSON; 2nd, DUKE OF NEWCASTLE (gr., Mr. Barker); 3rd, Messrs. WALSHAW. These were all very good.

MISCELLANEOUS.

Groups of Calceolarias.—1st, very good, Mrs. LOYD, Lincroft.

Begonias.—Mr. J. STYAN, York. There were some splendid flowers in this exhibit.

BOUQUETS.

These were a fine feature. Messrs. PERKINS, of Coventry, were the leading prize-winners in this section, closely followed by Mr. W. ARTINGDALE, Sheffield.

FRUIT.

This section was very much better than was expected. For the decorated dessert table Lord BARNARD (gr., Mr. Tullett) was 1st; 2nd, Earl of HARRINGTON (gr., Mr. Goodacre); 3rd, Mr. MCINOOE.

Collection 10 kinds.—1st, Lord BARNARD; 2nd, Hon. Mrs. Meynell-Ingram (gr., Mr. Dawes).

Six Dishes.—1st, Lady BEAUMONT (gr., Mr. Nichols); 2nd, F. CORBETT, Esq. (gr., Mr. Jordan).

Four Dishes.—1st, Lord St. OSWALD (gr., Mr. Easter); 2nd, Lord LONDESBOROUGH (gr., Mr. McPherson).

Three Bunches of Black Hamburghs.—1st, DUKE OF NEWCASTLE (gr., Mr. Barker); 2nd LADY BEAUMONT. Very close.

Six Peaches.—1st, EARL OF FEVERSHAM (gr., Mr. WILLIARD).

Six Nectarines.—1st., Mr. HARRISON BROADLEY (gr., Mr. Lawton).

White Grapes.—1st, LADY BEAUMONT, with Buckland Sweetwater.

Figs.—1st. Mr. A. WILSON (gr., Mr. Leadbitter). A splendid dish.

Collections of Vegetables.—1st, LORD ALDENHAM (gr., Mr. Beckett); 2nd, LORD LATHOM (gr., Mr. Ashton).

Gold Medals were awarded to Messrs. KENT and BRYDON, Darlington, for a Miscellaneous Group; Messrs. R. SMITH & Co., Worcester; Messrs. MACK & MILN, Darlington; Messrs. DICKSON, Chester; Messrs. REAMSBOTTOM & Co., King's County, Ireland; the latter was for a grand collection of Anemones.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE friends and supporters of this institution held their annual festival in the Whitehall Rooms, Hôtel Métropole, on Wednesday last, the chair being taken by the Earl of Warwick, supported by Lord Redesdale, Lord Brook, Sir Walter Smythe, Bart., Baron Schroder, and Messrs. H. J. Veitch, M. H. Sutton, A. Sutton, G. A. Dickson, Arnold Moss, H. S. Rivers, G. Monro, P. Kay, J. Assbee, E. Rochford, P. Barr, G. Sherwood, Alderman Piper, W. Thompson, C. Czarnikow, R. McVitie, and numbers of Market Growers, Salesmen and Gardeners.

The more serious part of the repast being over, the CHAIRMAN gave the first toast, that of "His Majesty the King" (patron of the institution). He spoke of his Majesty's recent Continental trip and of his proposed visit to Ireland. Then followed the toasts (also proposed by the Chairman) of "Her Majesty the Queen" (patroness), "The Prince and Princess of Wales (patroness) and other Members of the Royal Family." The Chairman made allusion to the probability of the Prince of Wales taking the chair at the festival dinner of the G.R.B.I. in the near future. The Chairman also read a letter from her Royal Highness, enclosing a cheque for £20. The Chairman said that it was extremely difficult to say anything new or fresh about the aims and work of the Institution as that had been done so often. There were at the present date 201 men and 38 widows in receipt of pensions, the former of £20 and the latter of £16 a year.

Mr. H. J. Veitch, in responding to the toast of The Gardeners' Royal Benevolent Institution, thanked the company present for coming, as also all friends who had rallied to its support. He remarked, that by virtue of his office, he knew that its work was carried out with great economy and efficiency. The committee, which is thoroughly representative, met four times a year; and every member of it does his work from love of it. In order to maintain its position, the Institution needs a sum of from £4,000 to £5,000 annual income.

Lord REDESDALE proposed the toast "Success to Horticulture in all its Branches," to which Alderman R. PIPER (Worthing) responded.

A few other toasts followed. The sum promised or paid in aid of the funds by those present amounted to £1,771.

ROYAL METEOROLOGICAL.

MAY 20.—Captain D. Wilson-Barker, President, in the chair. Mr. C. P. Hooker read a paper on "The Relation of the Rainfall to the Depth of Water in a Well." In this he gave the weekly measurements of the depth of water in a well (101 feet deep), and the amount of rainfall at Cirencester, extending over the sixteen years 1887–1902. The depth of water in the well depends on how much the rain penetrates, and the penetration is determined by the amount of rain, the rapidity of its fall, and the existing condition of the soil. The winter rains penetrate easily, and the summer rains with difficulty. Mere absence of rain is not the only cause of scarcity, deficiency of spring rains, and subsequent heat and evaporation being far more important factors. After the early spring months but little rain penetrates to the well, so that a timely forewarning at that season might prove of great value by enabling the existing supplies to be husbanded at an early period. Considering how narrow is the boundary between sufficiency and want, and looking to the fact that every year sees further demands made on our water supplies, the author considers that it is of the utmost importance that more attention should be paid to the storage of our surplus winter rains. This might be done by the formation of large hill reservoirs, and doubtless such measures as the reafforesting of large tracts of land would be of use in checking the rapidity with which the rains reach the rivers, and are so lost.

Mr. W. Marriott gave an account of the frost of April, which was so keenly felt, coming after the long spell of very mild weather in February and March. The fortnight, April 12 to 25, was marked by keen northerly winds, great dryness, and low temperatures. Frosts on the ground were of almost nightly occurrence, and as the result, the destruction of the fruit-blossom has been very great and also very general. In many places a good deal of the Apple and Strawberry-blossom, although only in bud at the time, was killed; while Potatos were cut to the ground, and the foliage of Horse-Chestnuts and Limes much injured, particularly on the windward side. *Nature, June* 11, 1903.

MARKETS.

COVENT GARDEN, June 25.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.		s.d.	s.d.
Acers, each ...	2 0	2 6	Hydrangeas, doz.	8 0	24 0
Adiantums, doz.	4 0	8 0	Ivy-leaved Pelargoniums, dozen	4 0	6 0
Aralias, per doz.	4 0	8 0	Lilium longiflorum, per doz.	8 0	12 0
Arbor Vitæs, per dozen	9 0	18 0	Lycopodiums, p. dozen	4 0	5 0
Aspidistras, per dozen	18 0	36 0	Marguerites, doz.	4 0	12 0
Aucubas, per doz.	4 0	8 0	Mignonette, doz.	4 0	8 0
Calceolarias, per dozen	4 0	6 0	Musk, per dozen	2 0	4 0
Coleuses, per doz	4 0	5 0	Orange-trees, each	3 0	7 6
Crassulas, dozen	8 0	12 0	Palms, var., each	3 0	20 0
Crotons, per doz.	12 0	24 0	Pelargoniums, — Oak-leaved, scented, doz.	3 0	4 0
Dracænas, variety, dozen	12 0	48 0	pink, per doz.	4 0	8 8
Ericas, per dozen	8 0	18 0	— scarlet, dozen	4 0	6 0
Etoile d'Or, per dozen	12 0	18 0	Petunias, p. doz.	4 0	6 0
Euonymus, vars., per dozen ...	4 0	6 0	— in boxes ...	1 0	1 6
Ferns in var., per dozen	4 0	30 0	Pteris tremula, dz.	4 0	8 0
— Japanese balls, each	1 6	—	— Wimsetti, doz.	4 0	8 0
Ficus elastica, doz.	9 0	24 0	Pyrethrum coronarium (Double yellow Marguerites)	4 0	8 0
Fuchsias, p. doz.	4 0	5 0	— Single yellow	6 0	10 0
Heliotrope ...	4 0	6 0	Rodanthe, per dozen	5 0	6 0
Herbaceous Perennial Plants in variety, per box	1 0	2 0	Rose Trees, p. dz.	9 0	18 0
			Verbenas, dozen	8 0	10 0

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.		s.d.	s.d.
Azaleas, doz. bun.	2 0	4 0	Orchids: Cattleya, dozen blooms...	12 0	15 0
Callas, per dozen	3 0	4 0	— Dendrobiums, per dozen ...	2 0	3 0
Canterbury Bells	0 4	0 6	— Odontoglossums, dozen	2 0	4 0
Carnations, bunch	1 0	2 0	Pæonies, per doz. bunches... ...	4 0	6 0
Cornflowers, doz. bunches ...	1 6	2 0	Pelargoniums, zonal, dozen bunches ...	4 0	8 0
Eucharis	2 0	3 0	— White... ...	3 0	6 0
Ferns, Asparagus, per bunch ...	1 0	2 6	— Pink, Ivy, per doz. bunches	8 0	12 0
— French, per doz. bunches	0 4	0 6	Pinks, 12 bunches	6 0	10 0
— Maidenhair, doz. bunches	4 0	6 0	Poppies, Iceland, p. doz. bunches	1 6	3 0
Gardenias, p. box	1 6	3 0	Pyrethrums, doz. bunches... ...	3 0	5 0
Gladiolus, White, per bunch ...	0 5	0 9	Roses, Mermet ...	1 6	3 0
— Blushing Bride, bunch	1 0	1 6	— Moss, 12 bun.	6 0	8 0
— various, bnch	0 6	1 0	— various, per bunch ...	1 0	2 0
Gypsophila, bun.	0 6	—	— red, p. bunch	0 4	1 6
Iris, per bunch ...	0 6	1 6	— white, bunch	1 0	2 0
Ixia, doz. bunches	2 0	3 0	— pink, bunch	1 0	2 0
Liliums, White...	2 0	4 0	Smilax, doz. trails	1 6	2 6
— longiflorum, per bunch ...	2 0	3 0	Stephanotis, doz.	1 6	2 0
Lily of the Valley, p. doz. bunches	1 0	18 0	Stocks, 12 bunches	2 0	4 0
Lupins, doz bun.	3 0	4 0	Sweet Peas, per dozen bunches	2 0	4 0
Marguerites, yellow, doz. bunch.	1 6	2 0	Tuberoses, per dozen blooms...	0 3	0 4
Mignonette, doz.	2 0	3 0			
Malmaisons, per dozen	6 0	18 0			

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.		s.d.	s.d.
Apples, Australian, including Tasmanian, case	10 0	16 0	Grapes, Muscats, B., per lb.	1 0	1 6
Apricots, per box	1 0	1 6	Gooseberries, per sieve	3 6	4 6
Bananas, bunch	8 0	12 0	Lemons, per case	12 0	14 6
— loose, dozen	1 0	1 6	Lychees, packet	1 0	—
Cherries, per box	0 10	2 0	Melons, each	1 0	2 6
— sieve	6 0	12 0	Nectarines, A., per dozen	12 0	18 0
Currants, Red, per basket	4 0	—	— B., per doz.	2 0	6 0
Figs, per dozen	2 0	6 0	Oranges, per case	18 0	20 0
Grapes, Gros Maroc, lb.	1 6	2 0	Peaches, A., per dozen	18 0	24 0
— Hamburgh, A., per lb.	1 6	3 0	— B., per dozen	1 6	6 0
— — B., per lb.	1 0	1 6	Pines, each	1 6	3 0
— Muscats, A., lb.	3 0	4 0	Strawberries, A., per doz. lb.	10 0	12 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.		s.d.	s.d.
Artichokes, Globe, per dozen	2 0	2 6	Mushrooms, house, per lb.	0 9	1 0
Asparagus, sprue, per bundle	0 4	0 6	Onions, per bag	5 0	5 6
— Foreign	0 9	1 6	— green, per dozen	1 6	2 6
— English, per bundle	2 3	2 6	— picklers, per sieve	3 0	3 6
Beans, dwarf, lb.	1 0	—	Parsley, per doz. bunches	1 6	2 0
— broad, sieve	2 0	—	— sieve	1 0	—
— Channel Islands, per lb.	1 0	—	Peas, English, per bushel	3 0	4 0
Beetroots, per bushel	2 0	3 0	Potatos, per ton	120 0	160 0
Cabbages, tally	1 0	2 6	— Channel Isles, per cwt.	13 0	14 0
Carrots, new, per dozen	1 0	4 0	— New Teneriffe, per cwt.	10 0	12 0
Cauliflowers, per dozen	2 0	4 0	Radishes, per dozen bunches	0 3	1 0
Celery, per dozen bundles	12 0	15 0	Rhubarb, outdoor	3 0	3 6
Cress, per dozen punnets	1 3	—	Salad, small, punnets, per doz.	1 3	—
Cucumbers, per dozen	1 9	3 6	Spinach, per bushel	1 6	2 6
Endive, per doz.	1 0	1 6	Tomatos, Channel Islands, per lb.	0 5½	0 6½
Garlic, per lb.	0 4	—	— English, new, per 12 lb.	5 6	7 0
Horseradish, foreign, p. bunch	1 6	1 9	Turnips, new, per dozen bunches	4 0	5 0
Leeks, per dozen bunches	2 9	—	Vegetable-Marrows, per dozen	8 0	10 0
Lettuces, Cabbage, per dozen	0 6	0 9	Watercress, per dozen bunches	0 4	0 6
Lettuce, Cos, per score	0 6	1 0			
Mint, dozen bun.	2 0	—			

REMARKS.—Peas, owing to the absence of sunshine are coming very thin in the pod; the Strawberries now coming are Golden Noble and Royal Sovereign, most of which are of a very pale tint. Some Plums in boxes sell at 1s. to 1s. 6d. per box. The Currants quoted are in flat, square cross-handle baskets, containing about 8 lb. Italian Apricots of good colour are coming in round baskets, and cost 3s. to 4s. a basket.

POTATOS.

Various samples, 120s. to 160s. per ton; Cherbourg, 11s. to 12s. *John Bath*, 32 & 34, *Wellington Street, Covent Garden.*

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period June 14 to June 20, 1903. Height above sea-level 24 feet.

1903. JUNE 14 TO JUNE 20.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR. At 9 A.M. Dry Bulb.	At 9 A.M. Wet Bulb.	DAY. Highest.	NIGHT. Lowest.	RAINFALL.	TEMPERATURE OF THE SOIL at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	LOWEST TEMPERATURE ON GRASS.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 14	E.N.E.	49·1	47·8	51·5	44·5	1·20	53·0	55·3	54·0	43·7
MON. 15	E.N.E.	49·7	49·3	58·4	48·5	0·73	53·2	54·6	54·0	49·4
TUES. 16	S.S.E.	56·9	51·2	58·4	45·4	0·24	53·4	54·2	53·9	42·8
WED. 17	N.W.	54·3	51·0	66·4	45·7	0·28	54·0	54·3	53·8	35·6
THU. 18	N.W.	54·3	49·0	58·6	41·8	...	56·5	55·0	53·7	34·7
FRI. 19	E.N.E.	49·0	46·2	56·6	46·5	0·79	56·5	55·3	53·7	46·2
SAT. 20	N.E.	48·9	46·7	53·2	46·2	...	54·0	55·0	53·7	46·0
MEANS	...	51·7	48·7	57·6	45·5	Tot 3·24	54·4	54·8	53·8	42·6

Remarks.—Very dull, cold weather, with rain on five days.

ANSWERS TO CORRESPONDENTS.

ADDRESS WANTED: *H. H.* Frogmore, Windsor.

ADIANTUM CUNEATUM WITH VARIEGATED PINNÆ: *W. B.* Such forms are occasionally met with. It can scarcely be called an improvement on the type.

ASPARAGUS DYING AFTER BEING SEVEN YEARS PLANTED: *W. P.* The roots sent show all the signs of having been taken out of a waterlogged soil. It would be wise to plant a new quarter after draining the land 4 feet deep with rubble or tile drains, laid at 24 feet apart, and the water conducted to a deeper out-fall. After a heavy dressing of stable-litter, and the rougher contents of the garden rubbish-heap, half-decayed leaf-mould, waste vegetables, fine coal-ashes, sea or pit sand, seaweed, charcoal, &c., the least decayed and rougher materials being placed in the bottom of the trenches, and the finer and more decayed on the top of the second and third spits; the land should be trenched three spits deep, and after allowing it to settle, which it will do in about three months, proceed to throw the land into beds 5 feet in width, with alleys between having a depth of 1 foot, and a width of 2 feet, the excavated soil being thrown to the right and left over the adjoining beds. This done, planting should be carried out with two-year-old plants in the ordinary manner with three rows to a bed. Anything less thorough than the above will be of little avail. The soil sent for our inspection seemed to be not unsuitable, it was very friable, and apparently rich in plant food.

CANON HALL MUSCAT: *J. K.* The branches sent show the common fault of the variety, viz., bad setting, many seedless berries being observed. The rust observed may have been caused by currents of cold air coming into contact with them, or by hot steam. There appeared to us to be incipient traces of the spot fungus. See answers to correspondents in our last issue.

CARNATION DISEASED: *M. A.* The work of eelworms. For a remedy, see recent issues of the *Gard. Chron.*, under Notices to Correspondents.

CUCUMBER-LEAVES BROWNED: *Blight.* The so-called "Melon-blotch," frequently alluded to in the *Gardeners' Chronicle* of late.

GOOSEBERRIES DISEASED: *A. F. G.* See illustration in next issue.

MUSCAT OF ALEXANDRIA WITH BROWNED LEAVES: *Muscat.* The leaves are suffering from browning. See answer to "Gwyer" in last week's issue of the *Gard. Chron.*

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*G. R. M. R.* Ranunculus cardiophyllus, we think, but the radical leaves are not usually so much divided.—*T. A.* Metrosideros floribunda, Australia.—*F. O.* Stanhopea oculata.—*Thomas Rogers.* 1, Dendrobium; 2, Cypripediums. These flowers cannot be traced, and at this date (two months after sending them to us), we are unable to say if they were received or not.—*H. Henkel.* Aquilegia formosa.—*W. B. C.* 1, Codiæum Weismanni; 2, C. variegatum elegantissimum; 3, C. pulcherrimum; 4, C. interruptum; 5, probably the same as 3; 6, C. Evansianum; 7, C. trilobum; 8, C. angustifolium maculatum; 9, not found; 10, C. variegatum; 11, C. maculatum; 12, C. trilobum Disraeli; 13, C. variegatum medio-pictum; 14, Aralia, or Panax Victoriæ of gardens; 15, Codiæum Johannis; 16, 17, 18, Acalyphas with the numbers detached. The variegated one is A. musaica; the two with coloured edges are forms of A. marginata; 19, Maranta Massangeana; 20, Fittonia argyroneura. The Codiæums are known in gardens as Crotons; they vary much, and are difficult to determine.—*A. M.* The grass is Festuca rubra. *W. H. B.* Viburnum prunifolium.—*M. M.* Medicago scutellata.—*K. S. L.* 1, Heuchera micrantha; 2, Armeria maritima.—*W. H. H.* Alstrœmeria psittacina.—*A. W., Newark.* The yellow variegated leaf is Codiæum Weissmanni, the red Codiæum Evansianum; the other leaf, Phyllotænium Lindeni; the blue flower, Veronica Teucrium.—*T.* Ononis rotundifolia.—*A. A. G.* Lomaria Boryana, as nearly as we can judge by barren frond only. Send barren and fertile frond when possible.—*J. B.* 1, Hesperis matronalis, white var.; 2, Salvia pratensis; 3, Heuchera micrantha; 4, Lepidium Draba, a troublesome weed.—*J. W.* 1, Gaultheria Shallon; 2, Tellima grandiflora; 3, Spiræa filipendula; 4, not recognised; 5, Cerastium tomentosum; 6, Polemoniun cœruleum album; 7, Astrantia major.—*M. Buysmann.* Stachys recta.—*Max Leichtlin.* 1, Codonopsis ovata; 4, Aquilegia vulgaris var. pubiflora.—*C. W. D.* Veronica speciosa.—*D. G., Yorks.* 1, Prunus sinensis, fl.-pl.; 2, Pieris Mariana; 3, Euonymus europæus; 4, Ptelea trifoliata; 5, Tradescantia virginica.

NECTARINE DISCOLOURED: *J. M. M.* A mechanical injury, probably; no fungus or insect.

NOTICE TO LEAVE SERVICE: *Perplexed.* Being unacquainted with the matter in dispute, we would advise you to consult a lawyer.

PINK: *J. W.* A very much better variety of the same type was shown at the last meeting of the Royal Horticultural Society, by Mr. Douglas.

PEACH-LEAVES INJURED: *W. P.* The Shot-hole fungus. See our last issue, p. 404, for remedy.

PELARGONIUM-LEAVES INJURED: *G. Collyer.* We could detect neither insects nor fungus; but we suspect scalding by bright sunshine at a time when but little ventilation was afforded, or syringing with some irritant liquid, or an insecticide at too great a strength.

PELARGONITM LEAVES INJURED: *F. E. L.* The injury seems mechanical, perhaps from cold drip. There is no fungus. Are eelworms present at the root?

ROSE WITH "ORANGE-RUST:" *C. L. W., & A. R. S.* This orange-coloured "rust" is caused by a fungus which Mr. Worthington Smith named Coleosporium pingue. It exists in three forms on Roses at different seasons, but seldom together at the same time and on the same Rose-bush. In the first stage it is creamy-yellow in colour; at the midsummer stage it is brilliant cinnabar-red, the "Orange-fungus" or rust stage; and later it becomes black. Let flowers-of-sulphur be dusted over the infected foliage whilst the latter is wet from rain or dew, or after syringing. Be careful to see that every diseased leaf is thoroughly dusted. A full description, with figures of the fungus, appeared in our issue for July 17, 1886, pp. 76 and 77.

ROYAL GARDENERS' ORPHAN FUND: *A. F. Grubbe, gr., Seaford, co. Down.* The sum of 2s. kindly sent will be paid to the secretary.

SLUG PLAGUE: *D. H. T.* Trap them with bran laid in small heaps, collecting the creatures every morning early. Place tiles, slates, pieces of board, and the like, on the soil about ½ inch above it. Thousands can be caught by these simple traps if examined daily.

TOMATOS: *Venus.* The fruits are affected with the spot fungus, Cladosporium lycopersici, of which an illustration and description by Mr. Worthington Smith was published in the *Gardeners' Chronicle* for October 1, 1887, p. 409. Remove all affected fruits and burn them.

VINES WITH THRIPS ON THEM: *Chas. Lewis.* When the Grapes are stoned you may safely vaporise the vinery with XL-All lightly, affording two or three vapourings at intervals of two days.

COMMUNICATIONS RECEIVED.—W. W.—H. J. C.—E. C.—Sir W. T. T.-D.—A. W.—C. H. P.—E. M. H.—W. R. R.—W. H. C.—Sir T. H.—Society of Arts—M. Vilbouchevitch—Justice Corderoy—C. P.—M.—G.—Dobbie & Co.—H. W.—M. G.—W. G.—W. M.—H. T. B.—S. A.—W. A. C.—F. P.—E. J.—J. M.—H. W. W.—S. C.—W. M.—E. W.—F. K.—Glasshcen—W. C. L.

DIED.—EDWIN VICTOR ROBBINS, at Matlock, on the 18th, aged fifty-eight years. The deceased was for a period of forty years in the service of the Thames Bank Iron Company, and a well-known man in horticultural circles.

HYBRID CALANTHES IN THE GARDEN OF NORMAN COOKSON, ESQ., OAKWOOD, WYLAM-ON-TYNE.

GROUP OF PHAIUS, OAKWOOD GARDENS, WYLAM-ON-TYNE: PHOTOGRAPHED BY MR. CHAPMAN.

Bradbury, Agnew & Co., Ld., Printers, London and Tonbridge.